SkyIPCam777W
Wireless MPEG4 Night Vision Pan/Tilt Network Camera

Model # AICN777W

User's Manual

Ver. 1.0

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CHAPTER 1

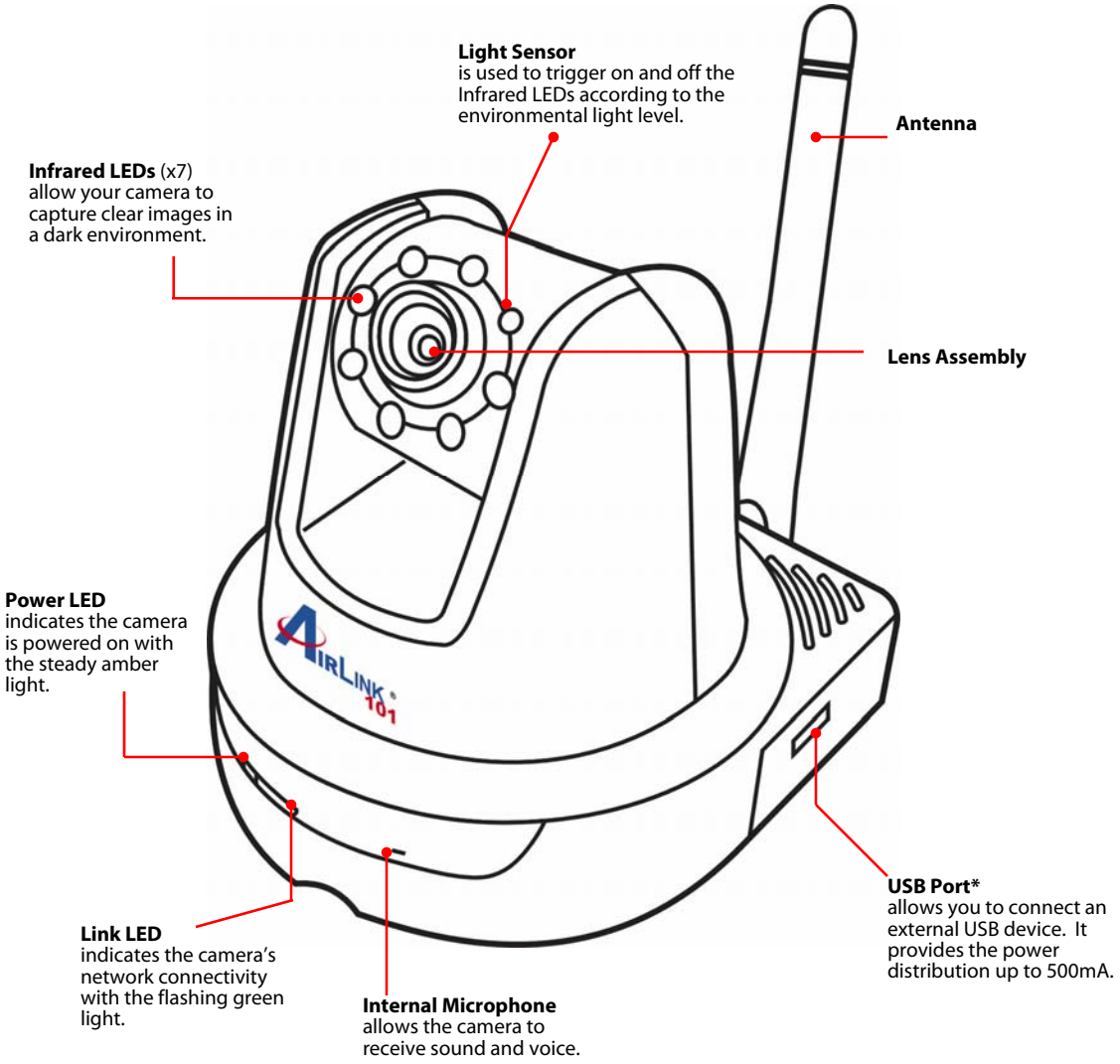
INTRODUCTION TO YOUR CAMERA

1.1 Checking the Package Contents

Check the items contained in the package carefully. You should have the following items:

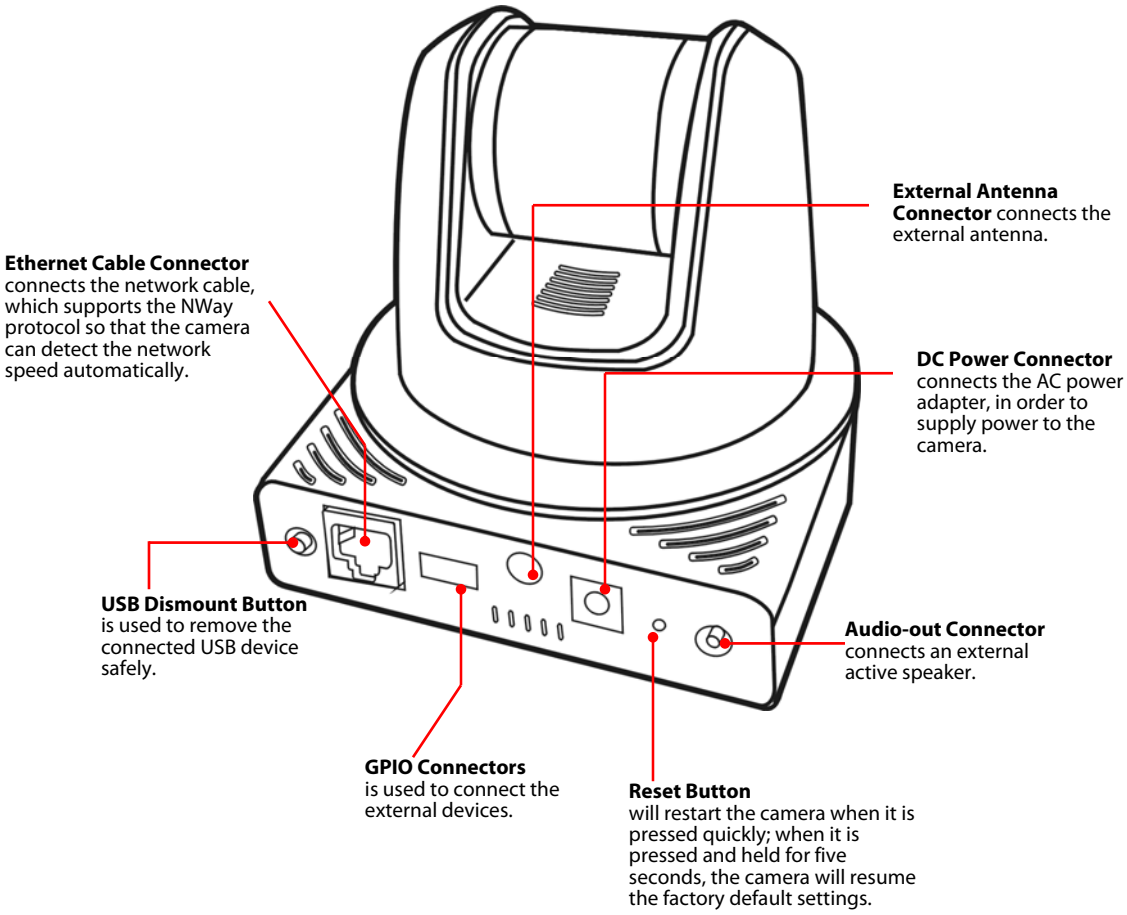
- ☑ One SkyIPCam777W Wireless MPEG4 Night Vision Pan/Tilt Network Camera.
- ☑ One Antenna.
- ☑ One AC Power Adapter.
- ☑ One Wall Mount Kit.
- ☑ One GPIO Connector
- ☑ One Ethernet Cable (RJ-45 type).
- ☑ One Installation CD-ROM.
- ☑ One *Quick Installation Guide*.

1.2 Getting to Know Your Camera


Light Sensor
is used to trigger on and off the Infrared LEDs according to the environmental light level.
Antenna
Infrared LEDs (x7)
allow your camera to capture clear images in a dark environment.
Lens Assembly
Power LED
indicates the camera is powered on with the steady amber light.
USB Port*
allows you to connect an external USB device. It provides the power distribution up to 500mA.
Link LED
indicates the camera's network connectivity with the flashing green light.
Internal Microphone
allows the camera to receive sound and voice.

Front View

* The camera's USB port also supports WCN (Windows Connect Now) technology, which allows you to use notebook computer to set up and store your wireless networking configuration on the USB storage device, and then retrieve the wireless settings when you connect the USB storage device to the camera.


External Antenna Connector connects the external antenna.
Ethernet Cable Connector connects the network cable, which supports the NWay protocol so that the camera can detect the network speed automatically.
DC Power Connector connects the AC power adapter, in order to supply power to the camera.
USB Dismount Button is used to remove the connected USB device safely.
Audio-out Connector connects an external active speaker.
GPIO Connectors is used to connect the external devices.
Reset Button will restart the camera when it is pressed quickly; when it is pressed and held for five seconds, the camera will resume the factory default settings.

Rear View

NOTE: After pressing the USB Dismount Button for four seconds, the Power LED starts flashing. When the Power LED resumes the steady amber light, you can remove the USB device safely.

1.3 Features and Benefits

- **MPEG4/MJPEG Dual-codec Supported**

  The camera provides you with excellent images by the MPEG-4/ MJPEG dual-codec selectable technology, allowing you to adjust image size & quality, as well as the bit rate according to the networking environment.

- **2-way Audio Capability**

  The built-in microphone of the camera provides on-the-spot audio via the Internet, allowing you to monitor the on-site voice. In addition, you can connect an external speaker to the camera so that you may speak to the people at camera view.

- **Day & Night Surveillance Supported**

  The seven Infrared LEDs around the standard lens assembly enable the camera to capture crystal clear images in dark environments or at night. When the Light Sensor detects the environmental light level as being too low, the camera captures the images in black & white mode with these infrared LEDs.

- **Optimal Viewing**

  With the pan/tile functions, you can easily monitor everywhere via the camera by moving the camera lens to the left/right (165/165 degrees) or up/down (90/15 degrees). In addition, you can assign up to eight positions for the camera, enabling you to move the camera lens to the desired position quickly.

- **Supports RTSP**

  The camera supports RTSP (Real Time Streaming Protocol), which is a technology that allows you to view streaming media via the network. You can view the real-time video with the Quick Time player or RealPlayer. To view the real-time streaming image on your computer, open the Web browser and enter the RTSP link: rtsp://(IP address of the camera)/mpeg4.

- **Supports Multiple Profiles**

  The camera supports multiple profiles simultaneously, so that you can separately set up different image settings (such as image quality and frame rate) for the three video types of the camera: MPEG4, MJPEG, and 3GPP.

- **I/O Connectors Provided**

  The camera provides the I/O connectors on the rear panel (IN/OUT), which provide the physical interface to receive and send digital signals to a variety of external alarm devices. You can connect a special featured device, and then configure the settings and control the device from the **GPIO Trigger** window of Web Configuration.

- **Remote Control Supported**

  By using a standard Web browser or the bundled SkyIPCam View software application, the administrator can easily change the configuration of the camera via Intranet or Internet. In addition, the camera can be upgraded remotely when a new firmware is available. The users are also allowed to monitor the image and take snapshots or record videos via the network.

- **Supports Connection to External Devices**

  With the auxiliary Input/Output connectors, you can connect the camera to a variety of external devices, such as the external speaker and the USB device.

- **Multiple Platforms Supported**

  The camera supports multiple network protocols, including TCP/IP, SMTP e-mail, HTTP, and other Internet related protocols. Therefore, you can use the camera in a mixed operating system environment, such as Windows 2000 and Windows XP.

- **Multiple Applications Supported**

  Through the remote access technology, you can use the cameras to monitor various objects and places for your own purposes. For example: babies at home, patients in hospital, offices, banks, and etc. The camera can capture both still images and video clips, so that you can keep the archives and restore them at any time.

1.4 System Requirement

- **Networking**

  LAN: 10Base-T Ethernet or 100Base-TX Fast Ethernet.
  WLAN: IEEE 802.11b/g.

- **Accessing the Camera by using Web Browser**

  Platform: Microsoft® Windows® 2000/XP/Vista
  CPU: Intel Pentium III 800MHz or above
  RAM: 512MB
  Resolution: 800x600 or above
  User Interface: Microsoft® Internet Explorer 6.0 or above
  Apple Safari 2 or above
  Mozilla Firefox 2 or above

- **Accessing the Camera by using SkyIPCam View**

  Platform: Microsoft® Windows® 2000/XP/Vista
  Hardware Requirement:
  1 camera connected: Intel Pentium III 800MHz; 512MB RAM
  2 ~ 4 cameras connected: Intel Pentium 4 1.3GHz; 512MB RAM
  5 ~ 8 cameras connected: Intel Pentium 4 2.4GHz; 1GB RAM
  9 ~ 16 cameras connected: Intel Pentium 4 3.4GHz; 2GB RAM
  Resolution: 1024x768 or above

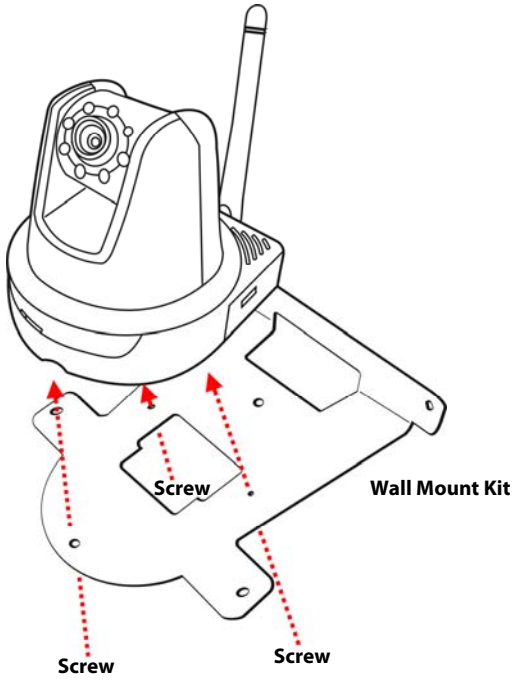
NOTE: If you connect multiple cameras to monitor various places simultaneously, it is recommended that you use a higher end computer. Viewing multiple cameras on a lower end computer can cause performance issues.

CHAPTER 2

HARDWARE INSTALLATION

2.1 Installing the Wall Mount Kit

The camera comes with a Wall Mount Kit, which allows you to place your camera anywhere by mounting the camera through the three screw holes located in the base of the Wall Mount Kit.

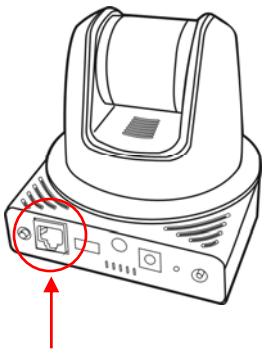


2.2 Connecting the Camera to LAN/WLAN

Use the provided Ethernet cable to connect the camera to your local area network (LAN).

When you connect the AC power adapter, the camera is powered on automatically. You can verify the power status from the Power LED on the front panel of the camera.

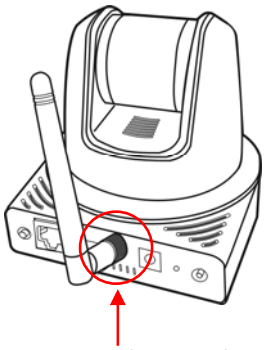
Once connected, the Link LED starts flashing green light and the camera is on standby and ready for use now.



Connecting the Ethernet Cable

If you use a wireless network in your application environment, you need to attach the included external antenna to the camera.

When the camera is powered on, the camera will automatically search any access point with “default” SSID.



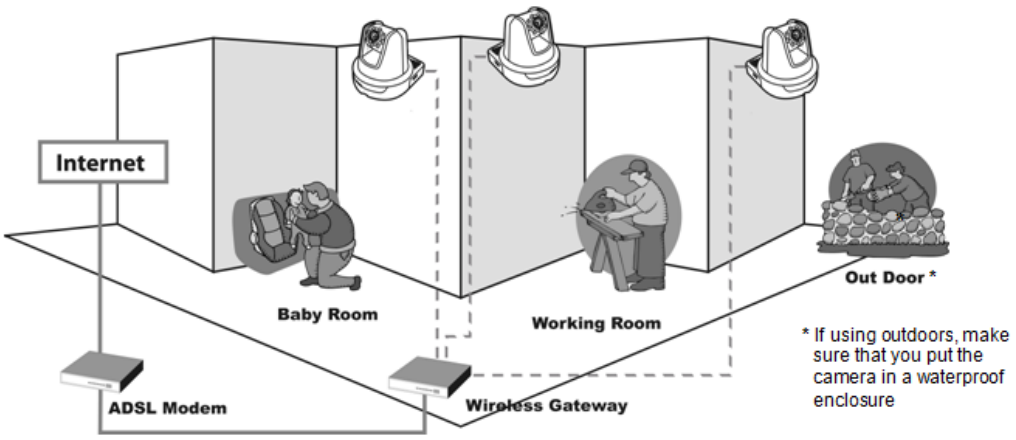
Connecting the External Antenna

2.3 Applications of the Camera

The camera can be applied in multiple applications, including:

- Monitor local and remote places and objects via Internet or Intranet.
- Capture still images and video clips remotely.
- Upload images or send email messages with the still images attached.

The following diagram explains some of the typical applications for your camera and provides a basic example for installing the camera.



Home Applications

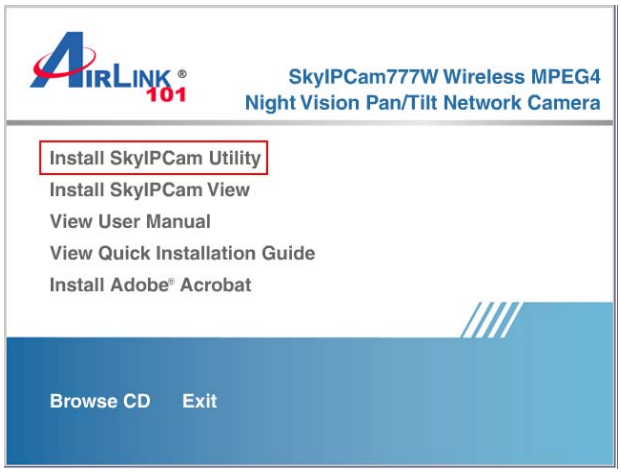
CHAPTER 3

SOFTWARE INSTALLATION

3.1 Installing SkyIPCam Utility

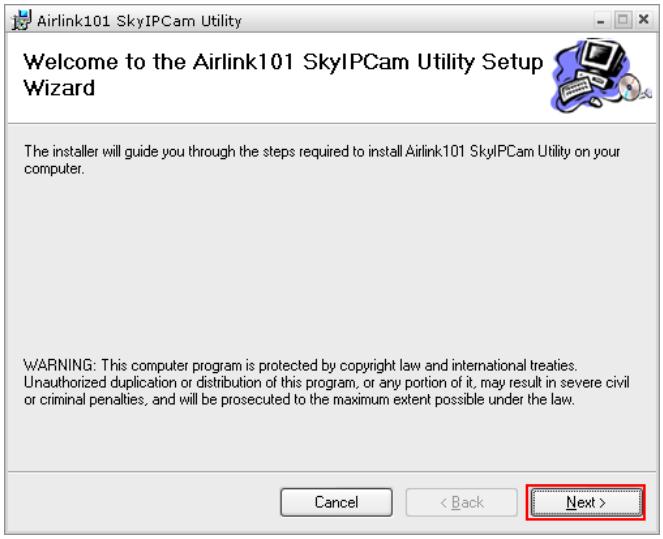
Step 1 Insert the provided CD and wait for the auto-run screen to appear.

Step 2 Click on **Install SkyIPCam Utility**.

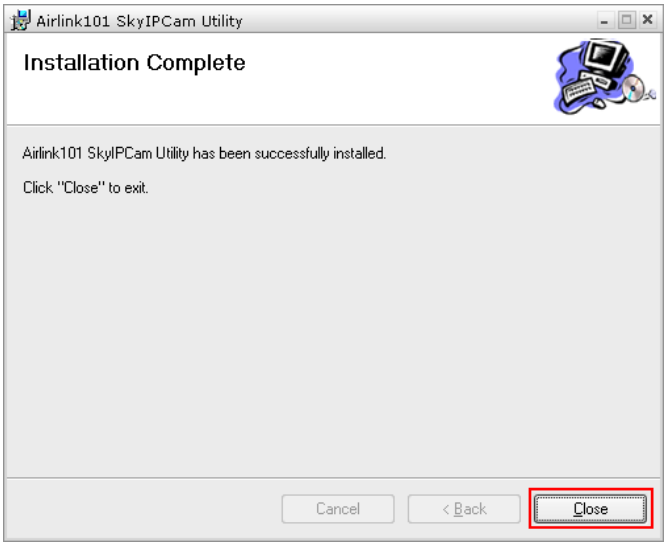


Note: *If the auto-run screen does not appear automatically, go to* ***Start***, ***Run***, *type:* ***D:\ Utility\Setup.exe*** *(where* ***D*** *is the letter of your CD drive) and click* ***OK****.*

Step 3 Follow the installer instruction by clicking **Next** on the following screens.


Airlink101 SkyIPCam Utility
Welcome to the Airlink101 SkyIPCam Utility Setup Wizard
The installer will guide you through the steps required to install Airlink101 SkyIPCam Utility on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
< Back
Next >

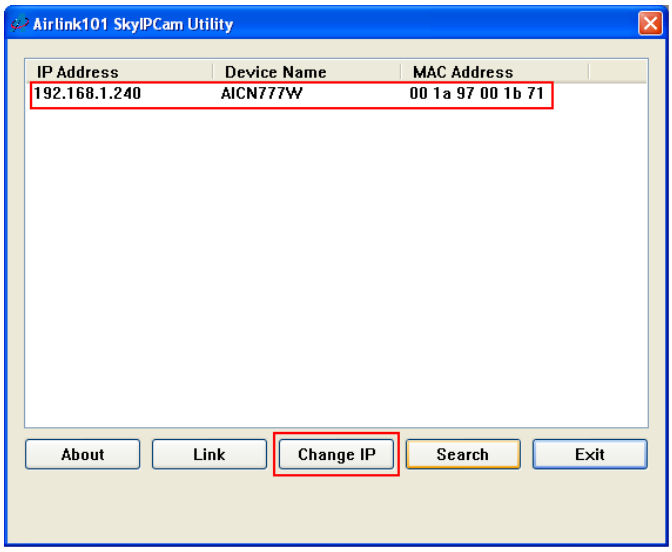
Step 4 Click **Close** to complete the installation.



3.2 Using SkyIPCam Utility

Step 1 Go to **Start > (All) Programs > AirLink101 > AirLink101 SkyIPCam Utiliy**

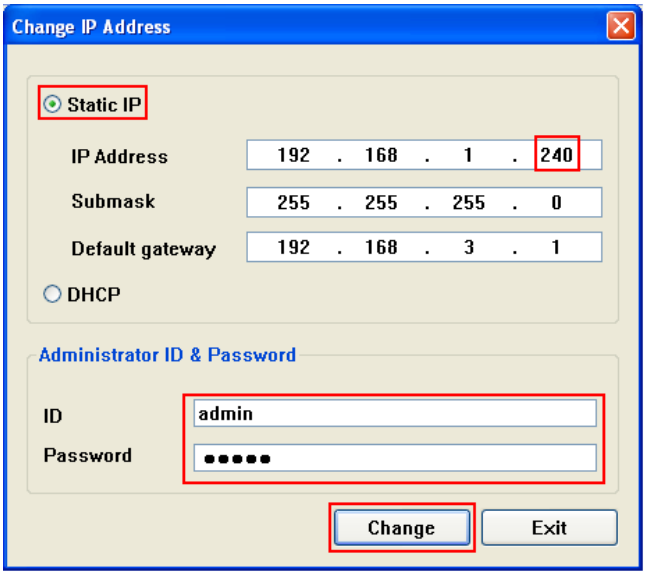
Step 2 Select the IP Camera you want to configure from the list and click on the **Change IP** button.



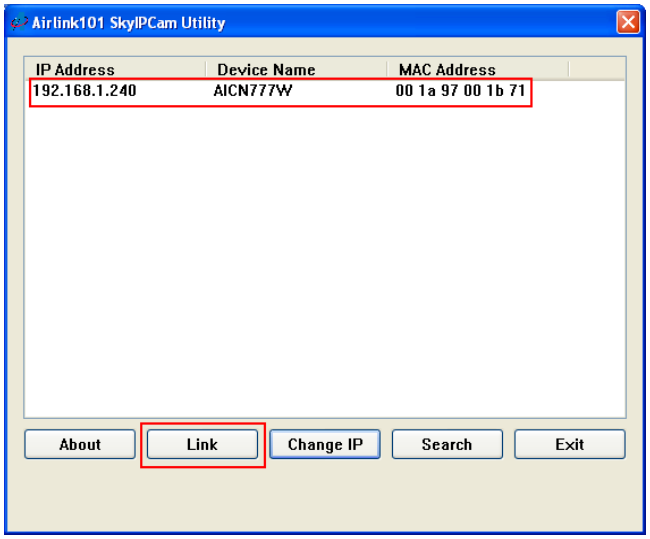
Note: If the Camera's IP address does not show up in the window, make sure the camera is properly connected to the same network as your computer is, and then click on the **Search** button.

Step 3 You may accept the suggested **Static IP**, or you can manually change the last 3-digit number of the IP Address, in case the suggested address is already being used by another device in the same network. Alternatively, if your router's DHCP server is enabled, you can select **DHCP**, and the router will automatically assign a dynamic IP address to your camera.

Enter **"admin"** for both **ID** and **password**, and click **Change**.

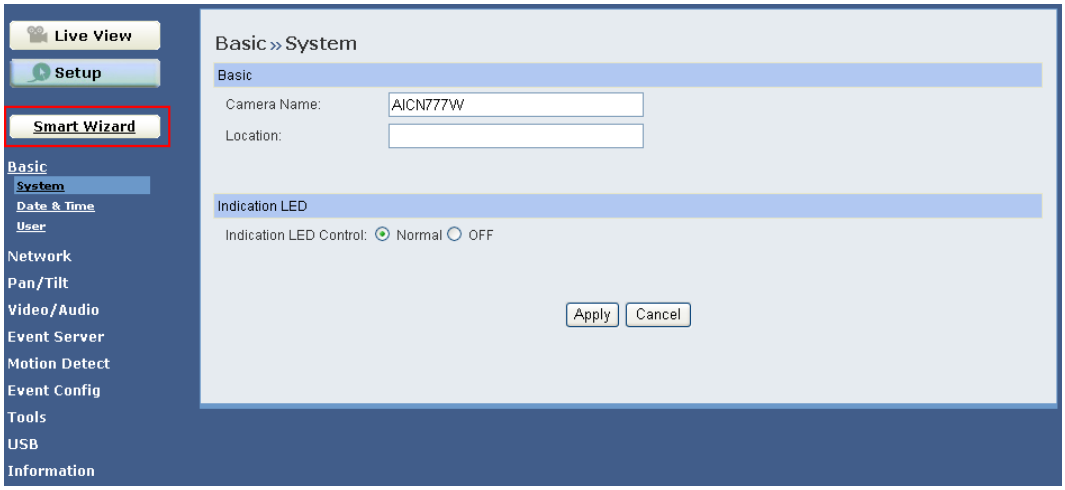


Step 4 Once the changes have been saved, the Utility will return to the original screen. Select your camera from the list and click **Link**.

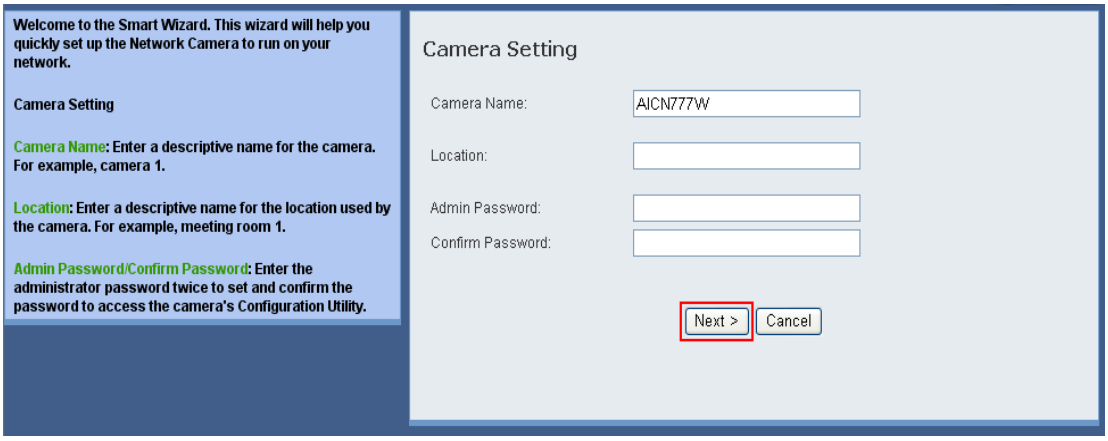


Step 5 When you are prompted for the username and password, enter **"admin"** for both **User name** and **Password**, and click **OK**.

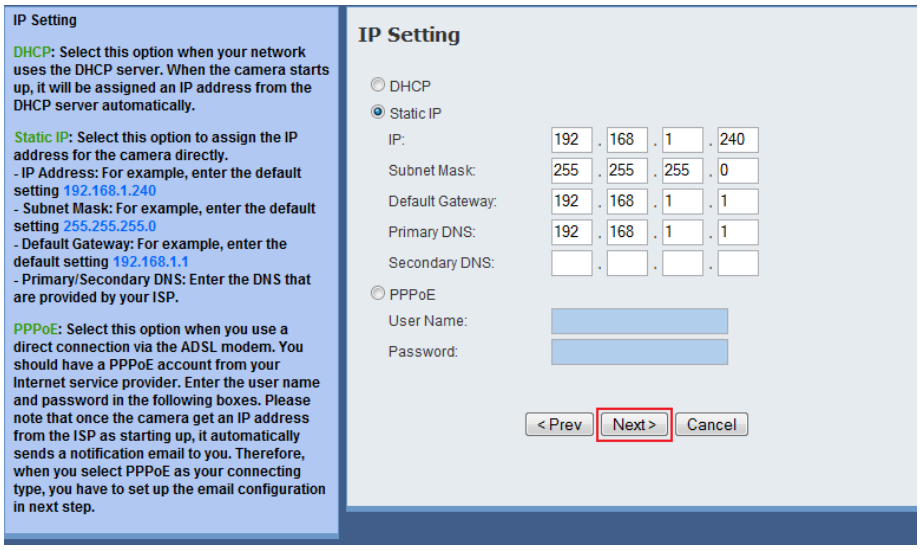
Step 6 The camera viewing window will appear. Click on **Setup**, and then click on **Smart Wizard**.



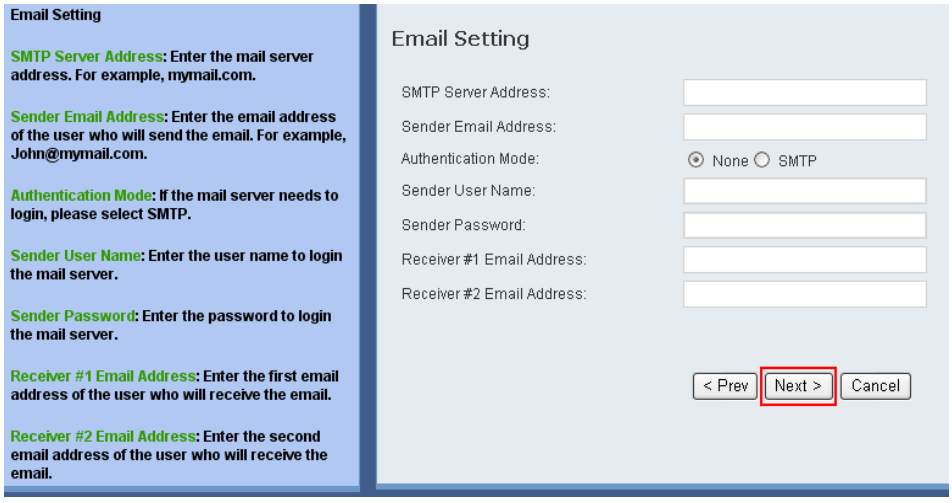
Step 7 If desired, you may change the default **Camera Name** and enter a name for the **Location**. Then enter **"admin"** for both **Admin Password** and **Confirm Password**. Click **Next**.


Welcome to the Smart Wizard. This wizard will help you quickly set up the Network Camera to run on your network.
Camera Setting
Camera Name: Enter a descriptive name for the camera. For example, camera 1.
Location: Enter a descriptive name for the location used by the camera. For example, meeting room 1.
Admin Password/Confirm Password: Enter the administrator password twice to set and confirm the password to access the camera's Configuration Utility.
Camera Setting
Camera Name:
AICN777W
Location:
Admin Password:
Confirm Password:
Next >
Cancel

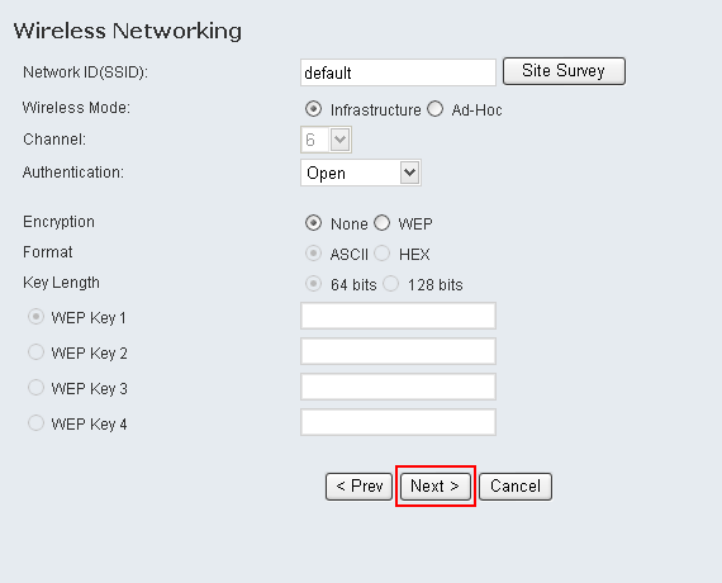
Step 8 You can change the camera's IP settings in the below window. If you have done this in Step 3, click **Next** to go to the next step.


IP Setting
DHCP: Select this option when your network uses the DHCP server. When the camera starts up, it will be assigned an IP address from the DHCP server automatically.
Static IP: Select this option to assign the IP address for the camera directly.
- IP Address: For example, enter the default setting 192.168.1.240
- Subnet Mask: For example, enter the default setting 255.255.255.0
- Default Gateway: For example, enter the default setting 192.168.1.1
- Primary/Secondary DNS: Enter the DNS that are provided by your ISP.
PPPoE: Select this option when you use a direct connection via the ADSL modem. You should have a PPPoE account from your Internet service provider. Enter the user name and password in the following boxes. Please note that once the camera get an IP address from the ISP as starting up, it automatically sends a notification email to you. Therefore, when you select PPPoE as your connecting type, you have to set up the email configuration in next step.
IP Setting
DHCP
Static IP
IP: 192 . 168 . 1 . 240
Subnet Mask: 255 . 255 . 255 . 0
Default Gateway: 192 . 168 . 1 . 1
Primary DNS: 192 . 168 . 1 . 1
Secondary DNS:
PPPoE
User Name:
Password:
< Prev
Next >
Cancel

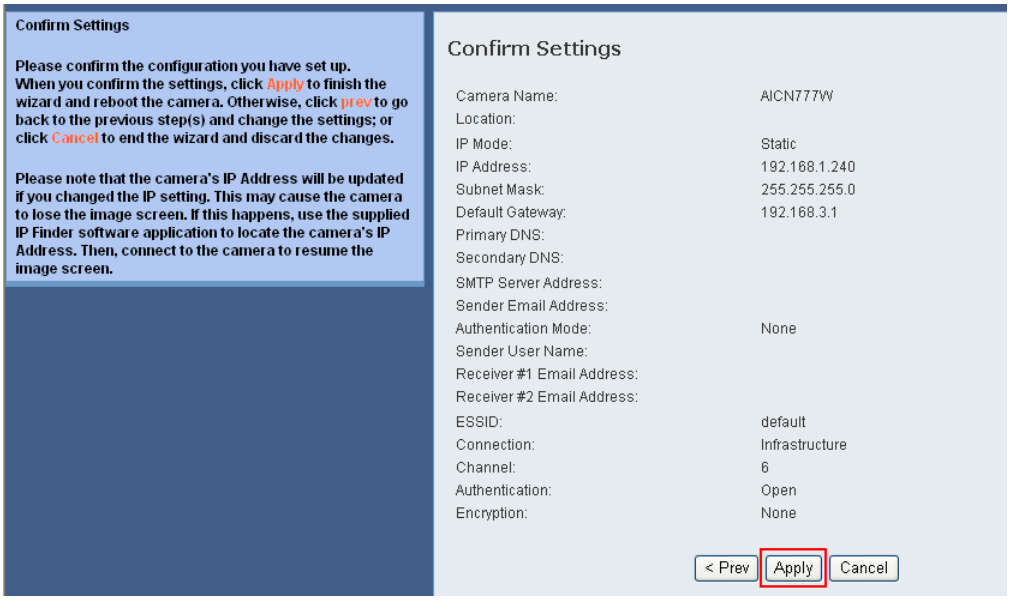
Step 9 If you would like to set up email alerts that you can receive in the future, enter your email information here. You can get this information from your email service provider. You can also set this up at a later time. Click **Next**.


Email Setting
SMTP Server Address: Enter the mail server address. For example, mymail.com.
Sender Email Address: Enter the email address of the user who will send the email. For example, John@mymail.com.
Authentication Mode: If the mail server needs to login, please select SMTP.
Sender User Name: Enter the user name to login the mail server.
Sender Password: Enter the password to login the mail server.
Receiver #1 Email Address: Enter the first email address of the user who will receive the email.
Receiver #2 Email Address: Enter the second email address of the user who will receive the email.
Email Setting
SMTP Server Address:
Sender Email Address:
Authentication Mode: None SMTP
Sender User Name:
Sender Password:
Receiver #1 Email Address:
Receiver #2 Email Address:
< Prev
Next >
Cancel

Step 10 If you would like to connect the camera wirelessly to the network, enter the wireless information according to your wireless router's (or access point's) settings. You can log into the router's (or AP's) web configuration pages to get the SSID and encryption details. Click **Next**.



Step 11 Confirm your settings at the last window. If everything is correct, click **Apply** and the configuration is completed.


Confirm Settings
Please confirm the configuration you have set up. When you confirm the settings, click Apply to finish the wizard and reboot the camera. Otherwise, click prev to go back to the previous step(s) and change the settings; or click Cancel to end the wizard and discard the changes.
Please note that the camera's IP Address will be updated if you changed the IP setting. This may cause the camera to lose the image screen. If this happens, use the supplied IP Finder software application to locate the camera's IP Address. Then, connect to the camera to resume the image screen.
Confirm Settings
Camera Name: AICN777W
Location:
IP Mode: Static
IP Address: 192.168.1.240
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.3.1
Primary DNS:
Secondary DNS:
SMTP Server Address:
Sender Email Address:
Authentication Mode: None
Sender User Name:
Receiver #1 Email Address:
Receiver #2 Email Address:
ESSID: default
Connection: Infrastructure
Channel: 6
Authentication: Open
Encryption: None
< Prev
Apply
Cancel

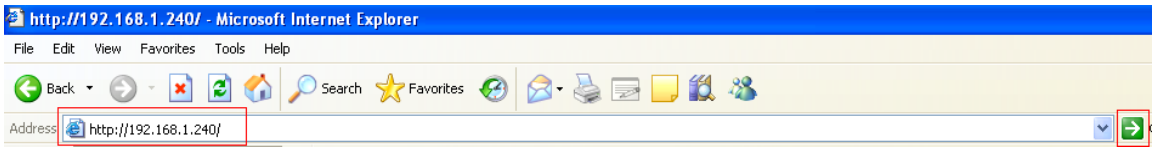
You can now disconnect the RJ-45 cable from the camera to access the camera wirelessly.

3.3 Viewing Images

Method 1 --- Access from Web Browser

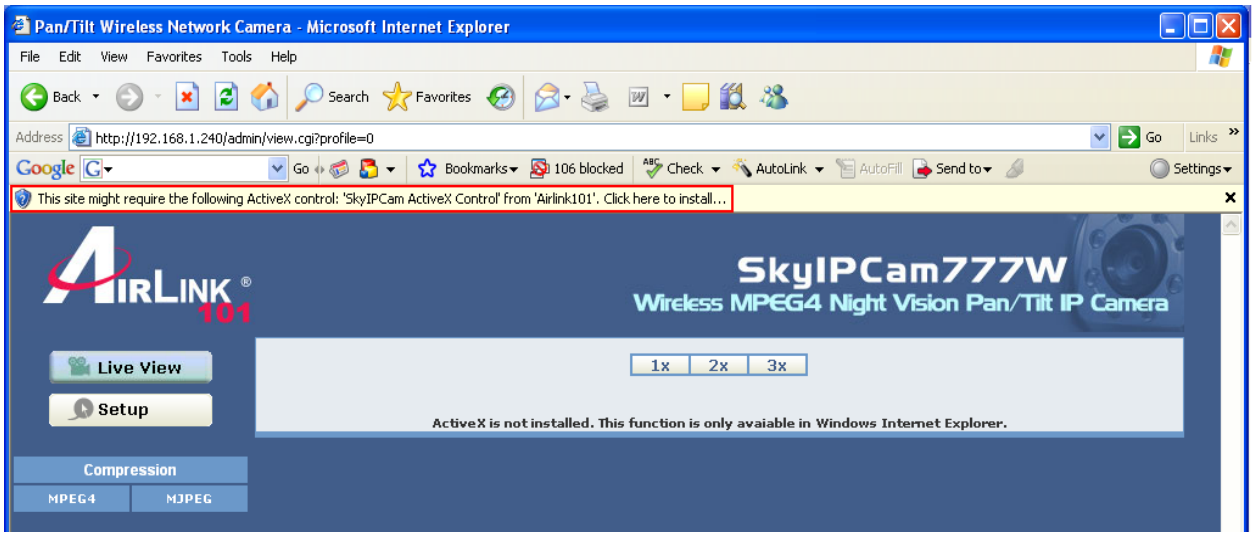
Step 1 If you know the IP address of your network camera, you may open the Web Browser on your computer.

Step 2 Type the IP address of your camera (the default IP is 192.168.1.240) in the Address bar, and then press [Enter].

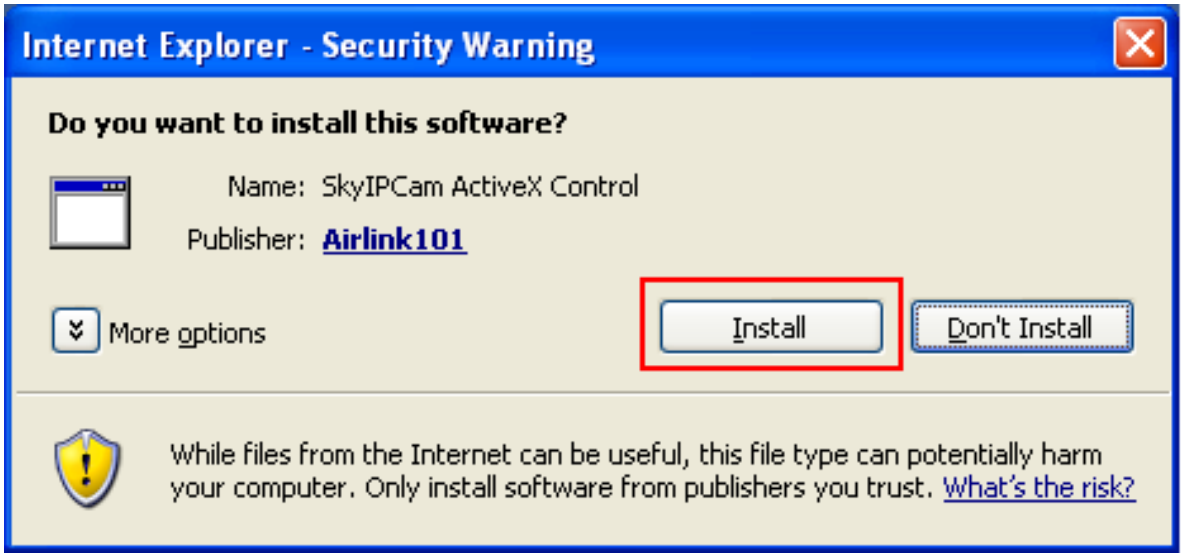


Step 3 Enter **"admin"** for both the **User name** and **Password**, and click **OK**.

Step 4 If it is the first time for your computer to access the Web based viewing page, you may be prompted to install the ActiveX Control. Click on the bar at the top of the screen and click on **Install ActiveX Control**.

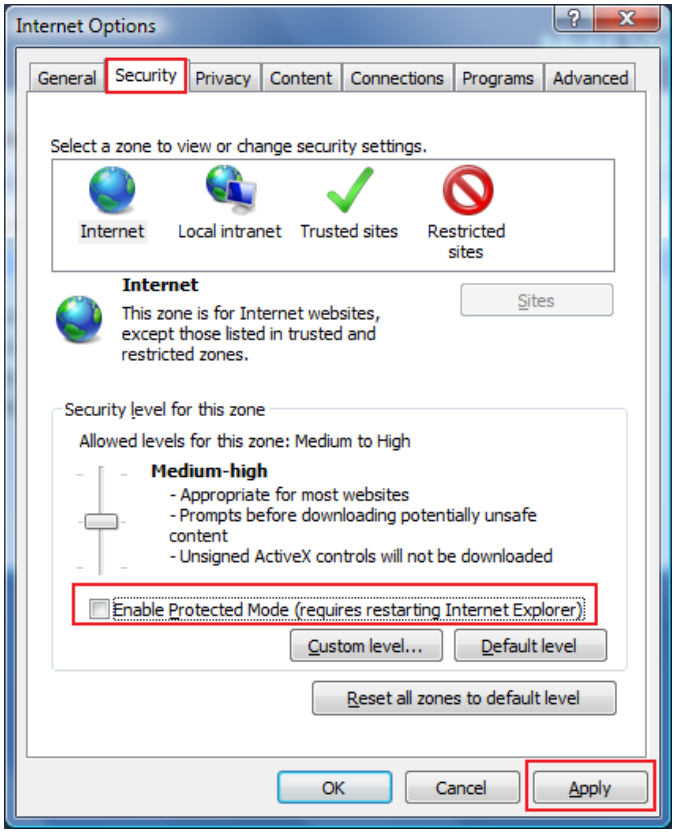

Pan/Tilt Wireless Network Camera - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://192.168.1.240/admin/view.cgi?profile=0
Go Links
Google Go Bookmarks 106 blocked Check AutoLink AutoFill Send to Settings
This site might require the following ActiveX control: 'SkyIPCam ActiveX Control' from 'Airlink101'. Click here to install...
AIRLINK 101
SkyIPCam777W
Wireless MPEG4 Night Vision Pan/Tilt IP Camera
Live View
Setup
1x 2x 3x
ActiveX is not installed. This function is only avaiable in Windows Internet Explorer.
Compression
MPEG4 MJPEG

Step 5 Click on **Install**. Once the installation is completed, you may be able to view live images.


Internet Explorer - Security Warning
Do you want to install this software?
Name: SkyIPCam ActiveX Control
Publisher: Airlink101
More options
Install
Don't Install
While files from the Internet can be useful, this file type can potentially harm your computer. Only install software from publishers you trust. What's the risk?

Step 6 For clearer images, you may simply rotate the camera's lens clockwise or counter-clockwise to adjust the focus.

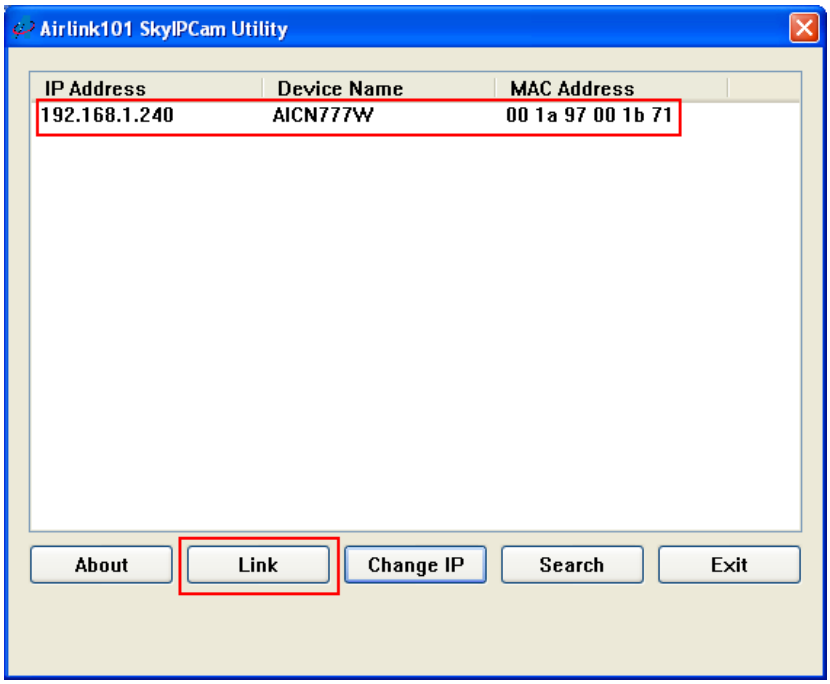
Note: If you are not able to find the pictures or video clips saved by "Snapshot' or "Manual Record" under **Windows Vista**, you may also need to disable Internet Explorer's Protected Mode: Open **Internet Explorer** and click **Tools**. Then click **Internet Options**. Select the **Security** tab, uncheck the box for protected mode, and click **Apply**. Restart Internet Explorer.



Method 2 --- Access from SkyIPCam Utility

Step 1 Go to **Start > (All) Programs > AirLink101 > AirLink101 SkyIPCam Utiliy**, and open the Airlink101 SkyIPCam Utility.

Step 2 Select your camera from the list and click **Link**

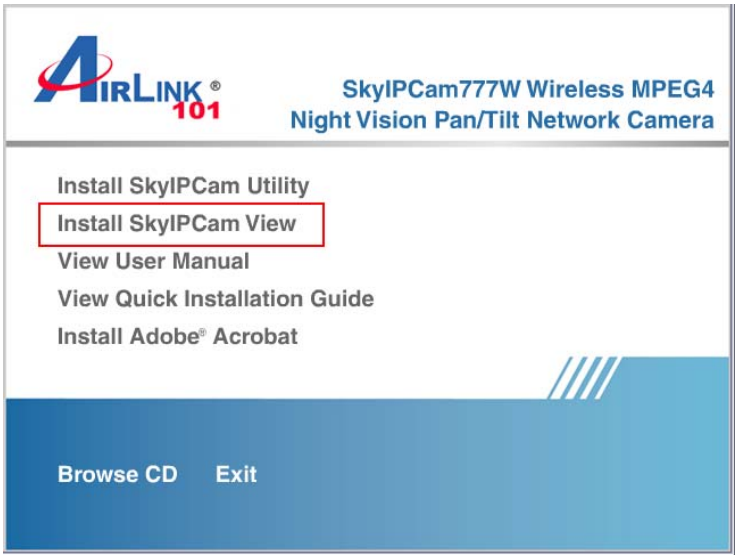


Step 3 Follow Step 3 to Step 6 mentioned in Method 1.

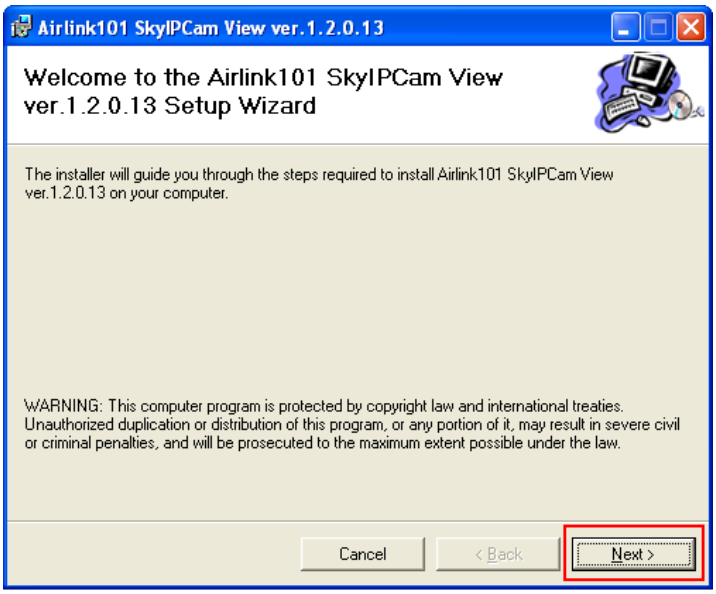
3.4 Using SkyIPCam View

To Install the Program

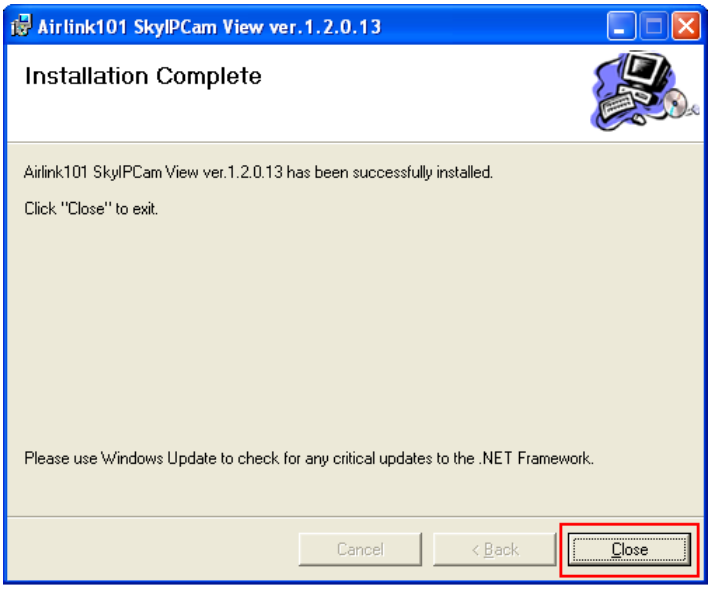
Step 1 Insert the installation CD to the CD ROM. When the auto-run screen pops up, click on **Install SkyIPCam View** from the auto-run screen.



Step 2 Keep clicking **Next** on the following windows.

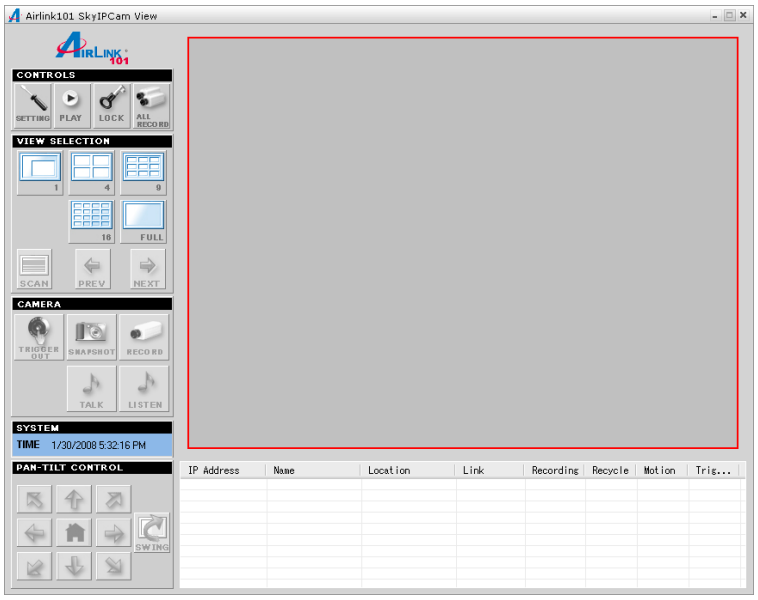

Airlink101 SkyIPCam View ver.1.2.0.13
Welcome to the Airlink101 SkyIPCam View ver.1.2.0.13 Setup Wizard
The installer will guide you through the steps required to install Airlink101 SkyIPCam View ver.1.2.0.13 on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
< Back
Next >

Step 3 Click **Close** to complete the installation.


Airlink101 SkyIPCam View ver.1.2.0.13
Installation Complete
Airlink101 SkyIPCam View ver.1.2.0.13 has been successfully installed.
Click "Close" to exit.
Please use Windows Update to check for any critical updates to the .NET Framework.
Cancel
< Back
Close

To Launch the Program

This section describes the user interface and operating instructions of **SkyIPCam View**. To launch the program, click **Start > Programs > AirLink101 > AirLink101 SkyIPCam View**, and the main screen will appear as below:



NOTE: Please set the resolution to 1024x768 or above on your computer while using **SkyIPCam View**; otherwise, the displayed main screen may be distorted.

Item Features

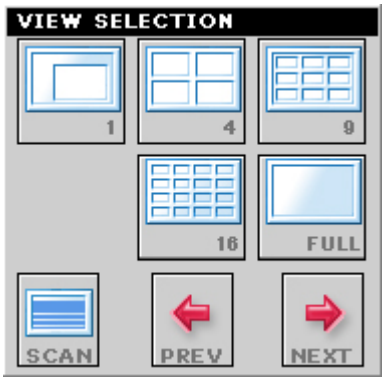
The following describes the function of each item on the main screen:

- **CONTROLS Panel**

- **SETTING:** Click this button to enter the Setting screen of SkyIPCam View. Click again to return to the main screen of SkyIPCam View.
- **PLAY:** Click this button to play the recorded video file using the media player on the computer (for example, Windows Media Player by default).
- **LOCK:** Click this button to lock the camera controls. Click again to resume controls for the camera. If you have set ID and Password in **SETTING > Account**, you will be asked to enter the required information to unlock.
- **ALL RECORD:** Click this button to start recording video clips for all connected cameras. Click it again to stop recording and save the files in the computer. When you connect only one camera, this button's function is the same as the RECORD button.

TIP By default, the ID and Password boxes are "blank." Click **SETTING > Account** to change the ID and password of Lock/Unlock function.

VIEW SELECTION Panel



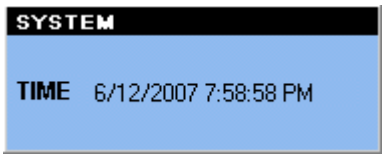
- **View mode buttons:** SkyIPCam View provides multiple view modes, including 1/4/9/16 windows modes and Full screen mode.
- **SCAN:** When you connect multiple cameras, click this button to display the video views as the main screen in turn.
- **PREV:** When you connect multiple cameras, click this button to switch the video view to the previous camera.
- **NEXT:** When you connect multiple cameras, click this button to switch the video view to the next camera.

TIP To set the time interval of scanning, click **SETTING > Other** and then adjust the time from 1 to 10 seconds in the **Time interval of scan** option.

- **CAMERA Panel**

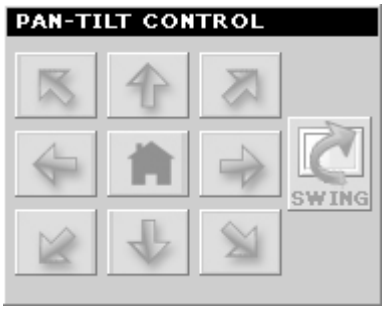
  - **TRIGGER OUT:** Click this button to turn on the trigger out connector of the camera. This button is available only when the connected camera supports the trigger out connector, which is used to control the external device connected to the camera, such as a light.
  - **SNAPSHOT:** Click this button to capture a still image using the selected camera and save the file in the computer.
  - **RECORD:** Click this button to start recording a video clip using the selected camera. Click it again to stop recording and save the file in the computer.
  - **TALK:** Click this button to speak through the camera. This button is available only when the connected camera supports 2-way audio function.
  - **LISTEN:** Click this button to receive the on-site sound and voice from the camera. This button is available only when the connected camera supports audio function.

- **SYSTEM Panel**



  This panel displays the current date and time.

- **PAN-TILT CONTROL Panel**



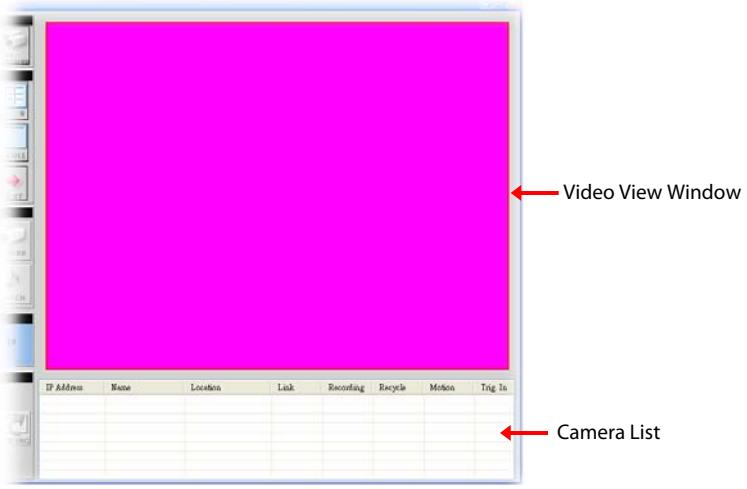
  When you connect a pan/tilt camera, the system will detect the camera's function automatically and the PAN-TILT CONTROL buttons will become functional. Otherwise, these buttons are displayed as gray buttons.

  - **Direction/Home buttons:** Click these buttons to adjust the camera's viewing angle to Up ( ) / Down ( ) / Left ( ) / Right ( ) / Left-Up ( ) / Left-Down ( ) / Right-Up ( ) / Right-Down ( ).

    Click the **Home** button ( ) to return the camera to the default position.

- **SWING:** If you have saved two or more positions for the selected camera, click this button to control the camera swinging from one position to another position.

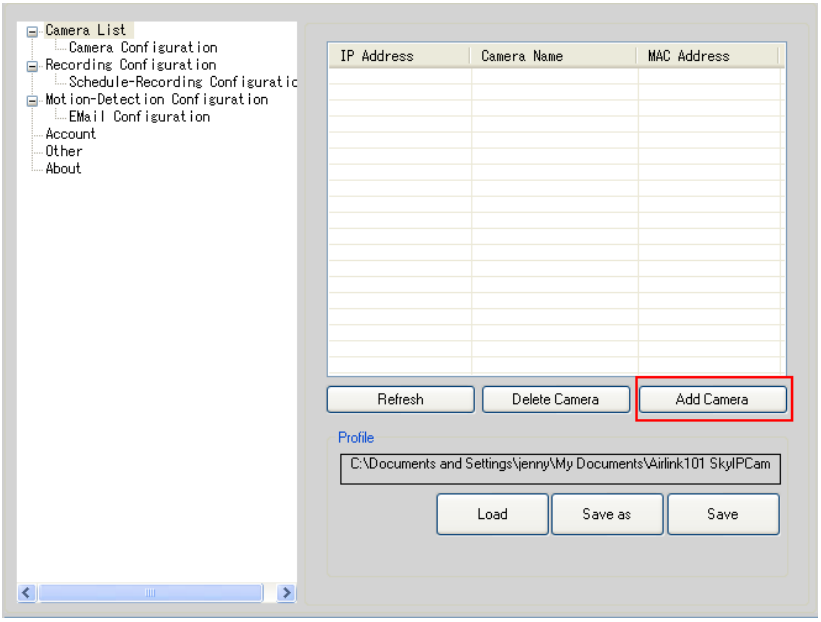
■ **Video View Window and Camera List**



- **Video View Window:** This window displays the video view of the selected camera, which can be divided into 4/9/16 windows according to your selection in VIEW SELECTION panel.
- **Camera List:** This list displays the information of the connected camera(s).

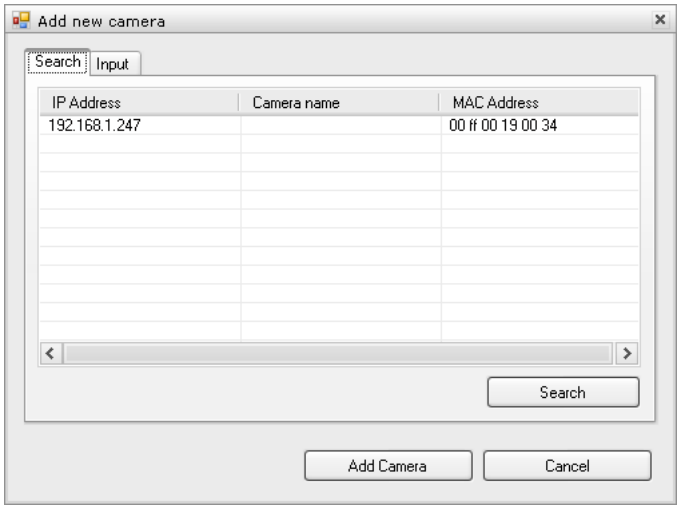
To Add a Camera

1. Click **SETTING** in the CONTROLS panel to display the Setting screen.
2. Click **Add New Camera**.

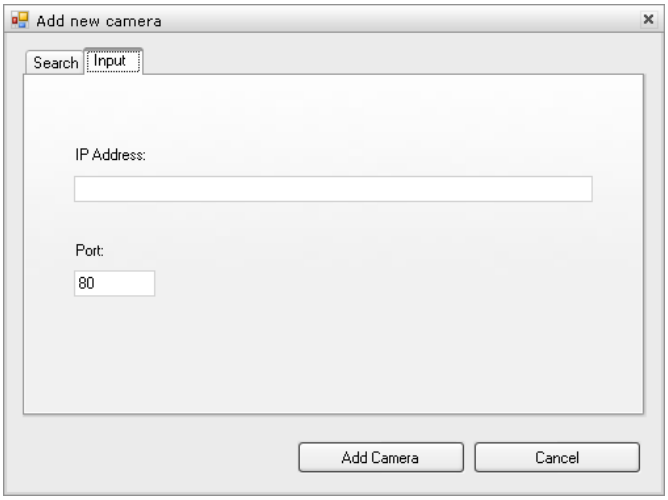


3. In the pop-up Add New Camera dialog window, you can:

- Select the **Search** tab if you do not know the camera's IP address. Click **Search** to search the available camera within the network. Once the camera is found and is shown in the list, select it and click **Add Camera**.



- Select the **Input** tab to add a camera by entering its IP address directly. Enter the camera's IP address (default: 192.168.1.240) and Port (default: 80), and then click **Add Camera**.



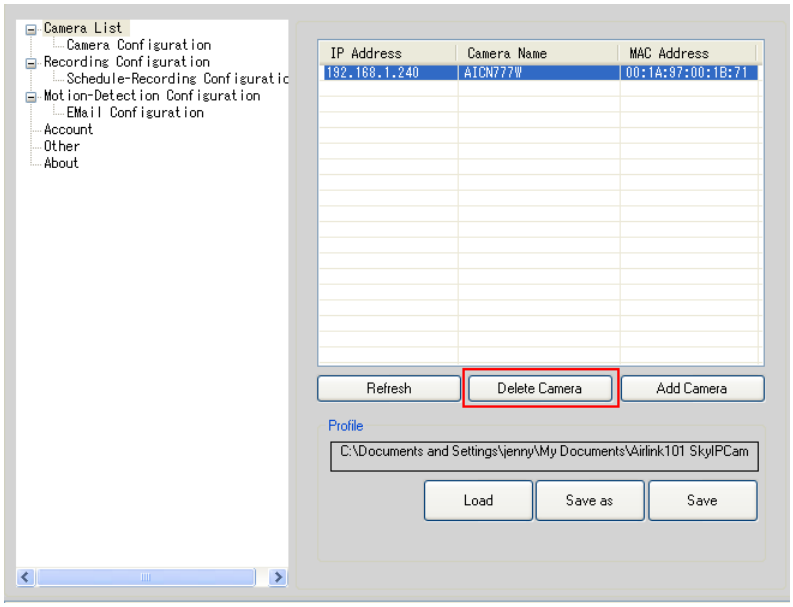
4. Enter the User name and Password for the camera, and then click **OK**. The connected camera will be displayed in the Camera List.

5. Click **SETTING** to return to the Video View Window. The video view of the selected camera will be displayed now.

TIP If you have changed the setting of camera after it is connected to the Camera list. **SkyIPCam View** might display the incorrect information or unauthorized error. Click **SETTING > Refresh** to update the latest information of camera.

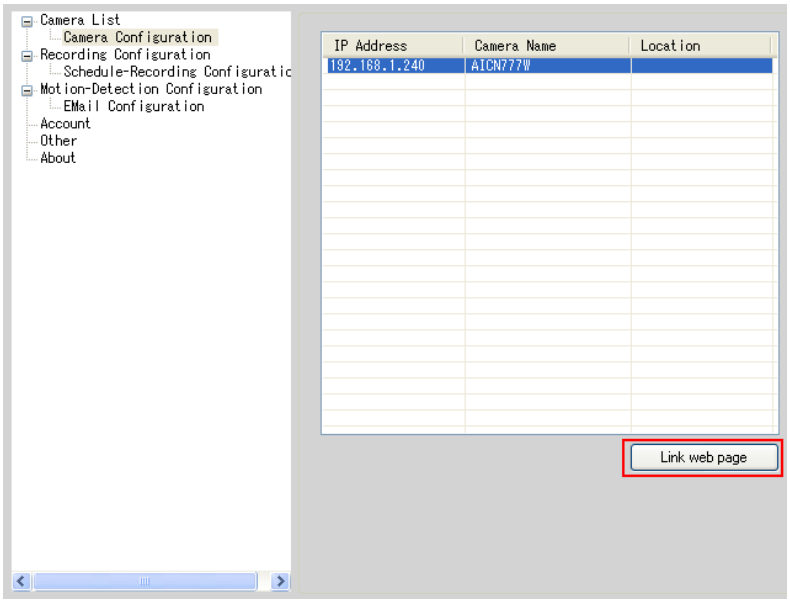
To Remove a Camera

1. Click **SETTING** in the CONTROLS panel to display the Setting screen.
2. Select a camera from the list and click **Delete Camera**.



To Link to the Web Page of the Camera

Click **SETTING > Camera List > Camera Configuration** and then **Link web page** to launch the Web browser that displays live view image and Web Configuration of the selected camera.



To Record Video

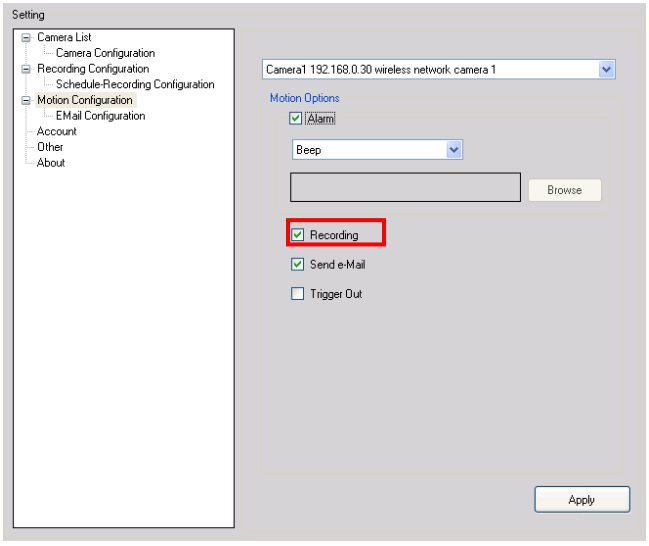
SkyIPCam View provides three methods to record video clips: one is to click the **RECORD/ALL RECORD** button to record manually; the second is to record by motion detection; the third is to set the recording schedule in **Setting > Recording Configuration > Schedule Recording Configuration**.

- **Manually Recording**

  Click **RECORD/ALL RECORD** and it starts recording. Click the same button again to stop recording.

- **Trigger Recording by Motion Detection**

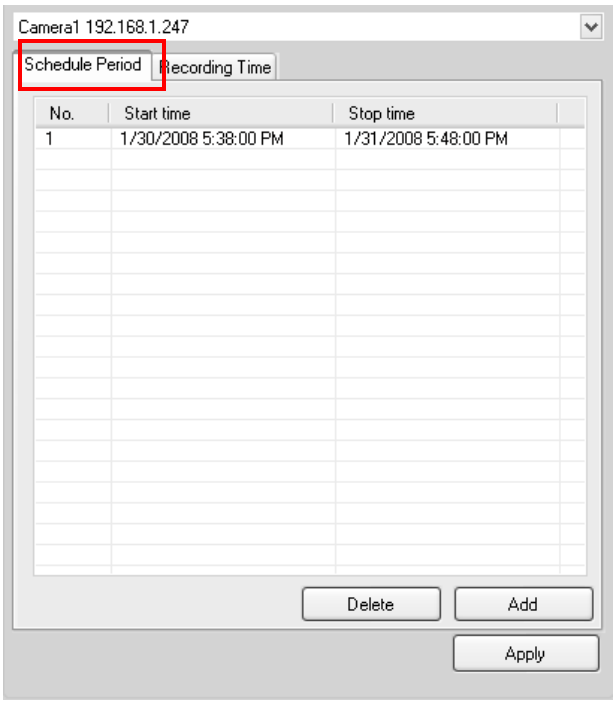
  When the motion detection function of the selected camera is enabled, you can configure the camera to start recording triggered by the detected motion. Click **SETTING > Motion Configuration**, and then select the **Recording** option to enable the selected camera to record by motion detection.



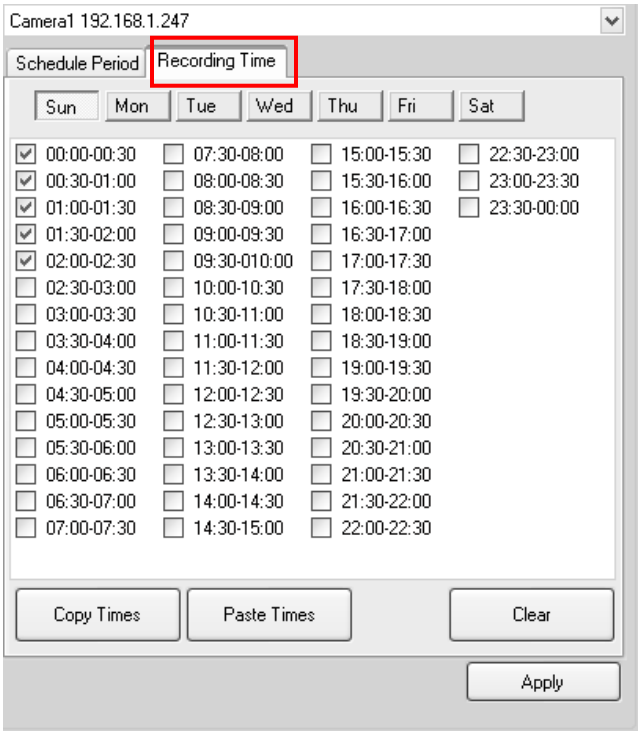
- **Schedule Recording**

  This recording method will work after you have completed the required settings in **Schedule Recording Configuration**. The recording schedule can be defined by **Schedule Period** or **Recording Time**.

- **Schedule Period:** First, select the camera from the pull-down list. Then, click **Add** to set the Start/Stop date and time and then click **OK** to add the recording schedule to the list. Click **Apply** to save the settings.



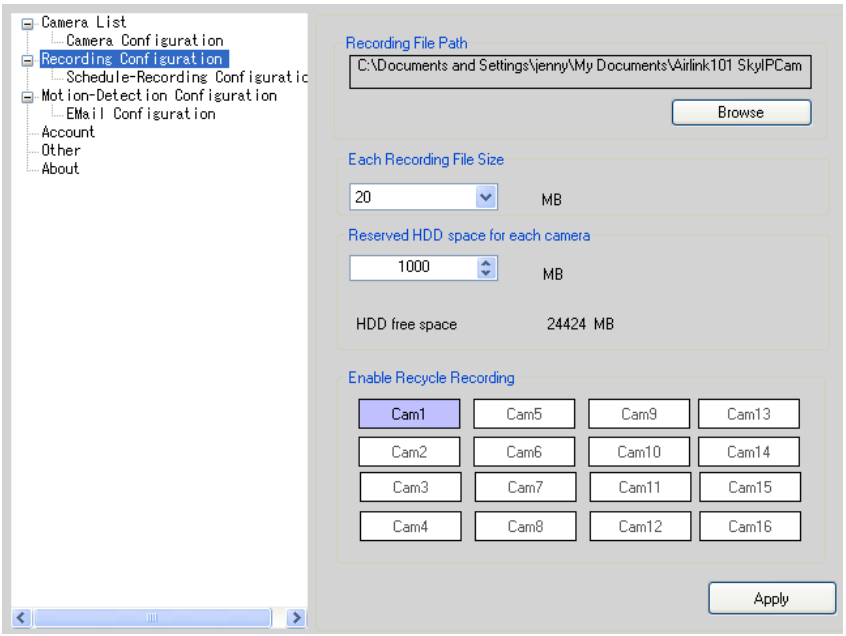
- **Recording Time:** First, select the camera from the pull-down list and select **Recording time** tab. Then, select the week day from the day buttons and then set the time period. Click **Apply** to save the settings.



To Configure the Recording Settings

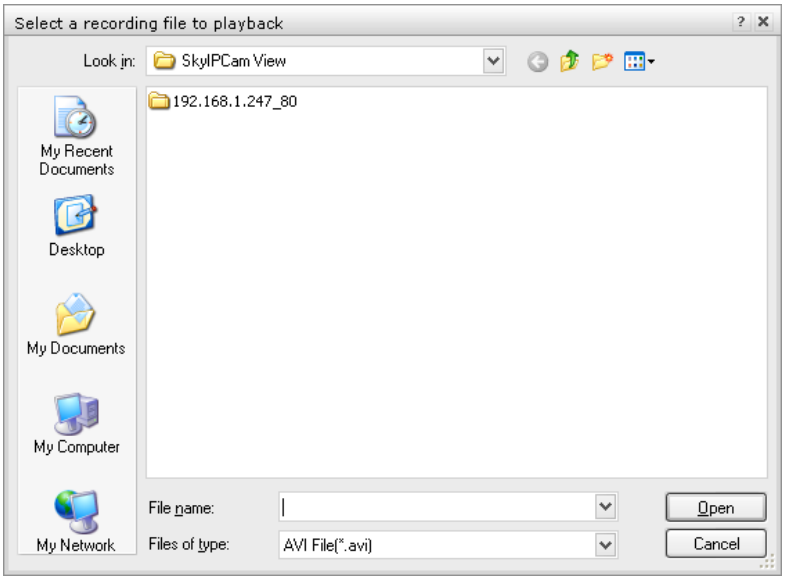
To configure the recording settings, including the storage folder and storage options, click **SETTING > Recording Configuration**.

- **Recording File Path:** To change the destination folder to save the recorded video file, click **Browse** under the **Recording File Path** box to assign a new folder.
- **Each Recording File Size:** This option allows you to select from **20** to **100** MB so that the video will be recorded as another file automatically when the recording file reaches the specified size limit.
- **Reserved HDD space for each camera:** This option allows you to set to reserve the storage space on the hard disk drive for the recording of each camera. Before setting the reserved space on hard disk drive, you can check the available storage space that is displayed in the **HDD Free space** field.
- **Enable Recycle Recording:** Click on the camera number to clear the files and continue to record videos when the reserved space of hard disk drive is full.



To Playback the Recorded Video

The recorded video clips are saved in your computer, and can be played using the media player on the computer, such as Windows Media Player. To start playback, simply click the **PLAY** button on the CONTROLS panel, and the following dialog screen will appear, allowing you to select the file to playback.

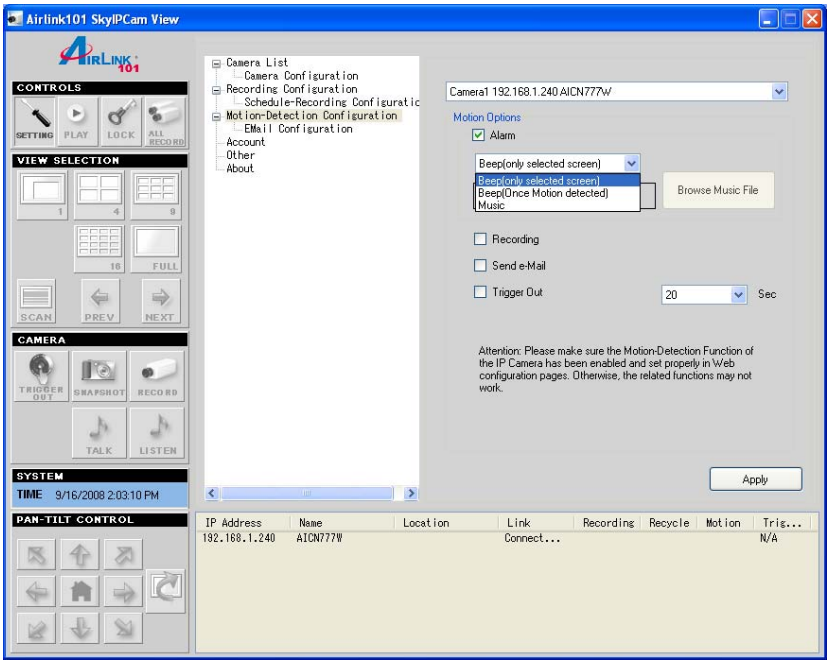


Select the recorded video file under the [camera] path and then click **Open** to launch the media player to playback.

NOTE: If your player on the computer doesn't have video codec to playback the recorded video. You can download video codec from http://www.xvid.org/downloads.15.0.html.

To Set up Motion Detection Options

When the motion detection function of the selected camera is enabled, you can set the **Motion Options** by selecting **Alarm**, **Recording**, **Send e-Mail**, and **Trigger Out** under **SETTING > Motion Configuration**.



- **Alarm:** Select **Beep (only selected screen)**, **Beep (once motion detected)**, or **Music** to alert you when the motion is detected.

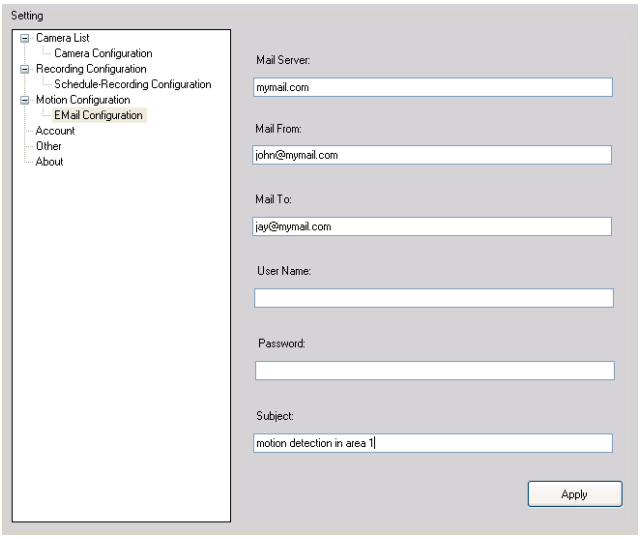
  - When you choose **Beep (only selected screen),** only the selected camera screen in the original viewing page will beep, while the other cameras still keep quiet even when motion is detected.

  - When you choose **Beep (once motion detected)**, all the cameras will beep at the same time when motion is detected by them, no matter whether their viewing screen is selected or not.

  - When you choose **Music**, you can customize the sound by clicking **Browse** and then selecting your favorite music (*.wav or *.mp3 file) in the computer.

- **Recording:** Select this option to enable the camera to record when motion is detected.

- **Send e-Mail:** Select this option so that the system will be able to send emails with captured images to the specified receiver. Once the option is selected, you have to complete the required information in **SETTING > Motion Configuration > EMail Configuration**.

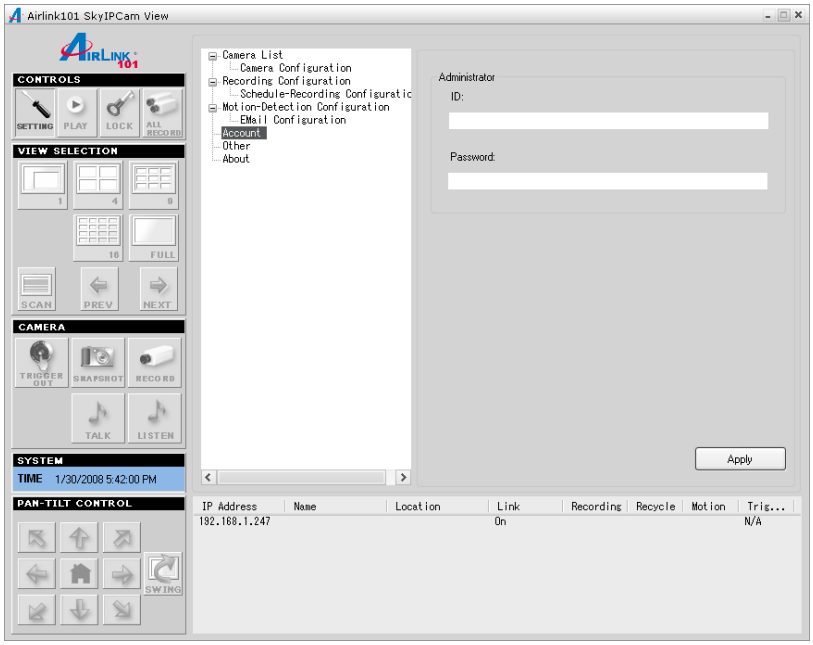


  - **Mail Server:** Enter the mail server address. For example, mymail.com.
  - **Mail From:** Enter the email address of the user who will send the email. For example, John@mymail.com.
  - **Mail To:** Enter the email address of the user who will receive the email.
  - **User Name:** Enter the user name to login the mail server.
  - **Password:** Enter the password to login the mail server.
  - **Subject:** Enter a subject for the notification email.

- **Trigger Out**: If the selected camera supports Trigger Out connector, select this option and interval time to enable the Trigger Out function.

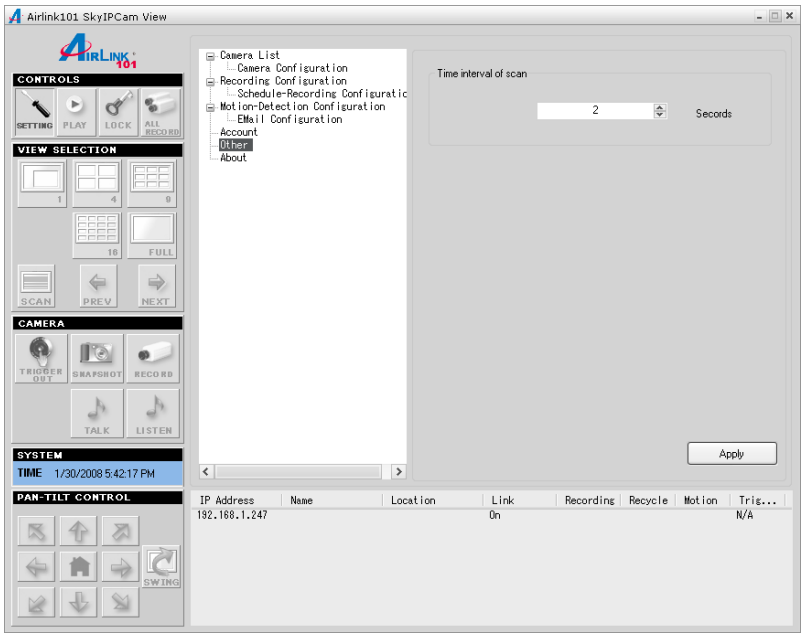
Account

You can set the administrator's **ID** and **Password** for the camera here.



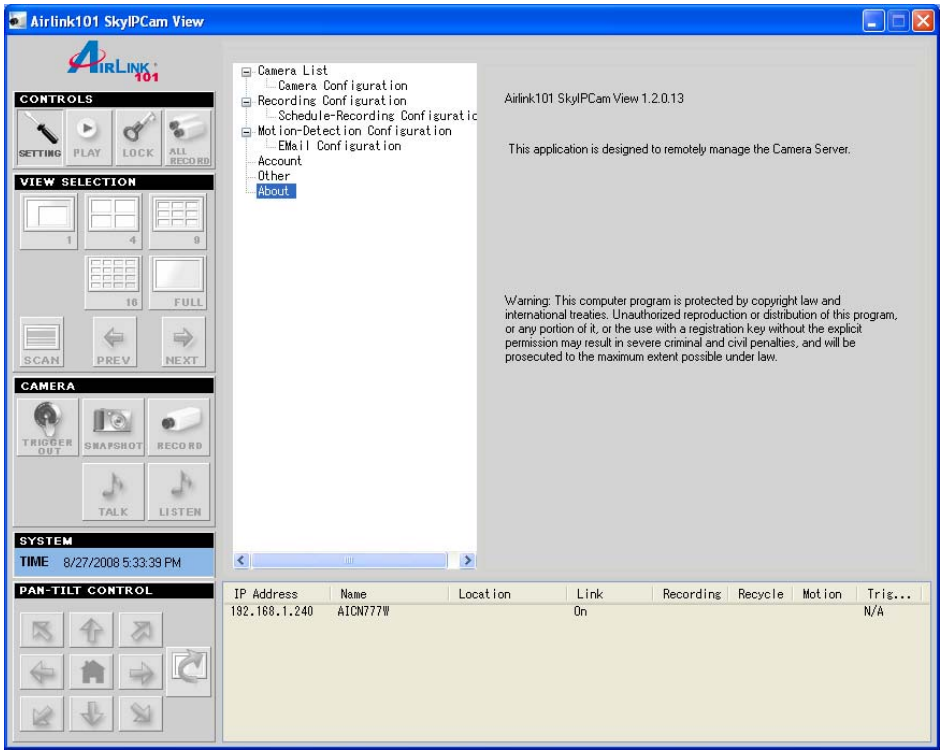
Other

It allows you to set the rotation interval if you are monitoring multiple cameras.



Information

Click **SETTING > About** to display the information of the software application.



CHAPTER 4

CONFIGURATION

4.1 Using the Web Configuration

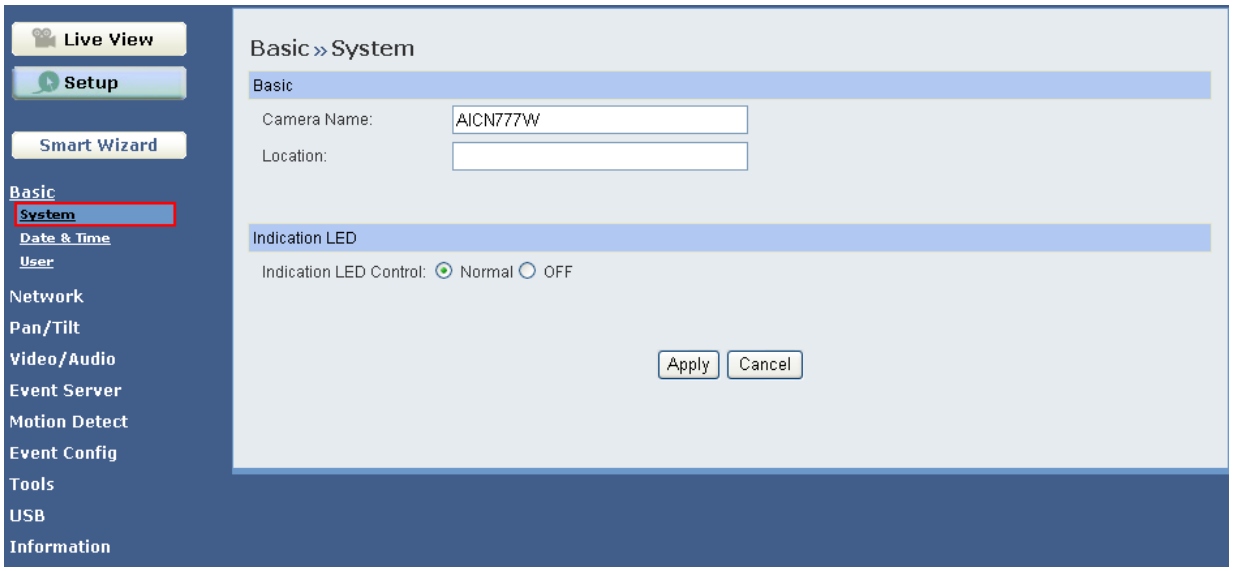
You can access and manage the camera through the Web browser and the provided software application SkyIPCam View. This chapter describes the Web Configuration, and guides you through the configuration of the camera by using the web browser.

To configure the camera, click **Setup** on the main page of Web Configuration. The Web Configuration will start from the **Basic** page.

4.2 Basic Setup

The Basic menu contains three sub-menus that provide the system settings for the camera, such as the Camera Name, Location, Date & Time, and User management.

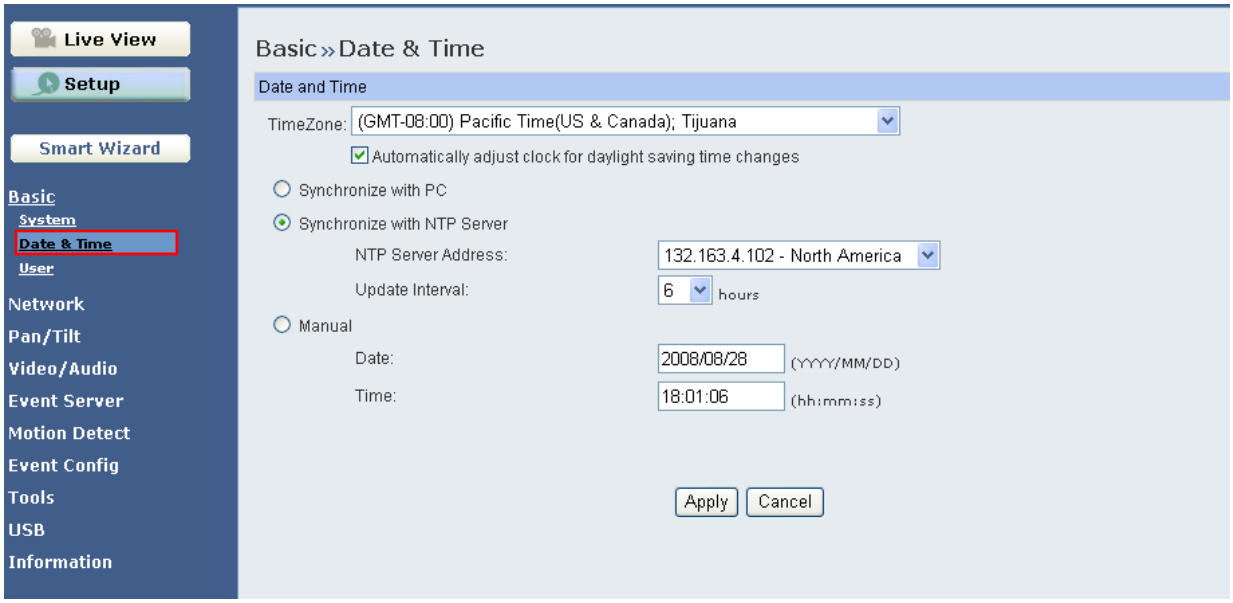
Basic >> System



- **Basic**
  - **Camera Name:** Enter a descriptive name for the camera.
  - **Location:** Enter a descriptive name for the location where the camera is.
- **Indication LED**

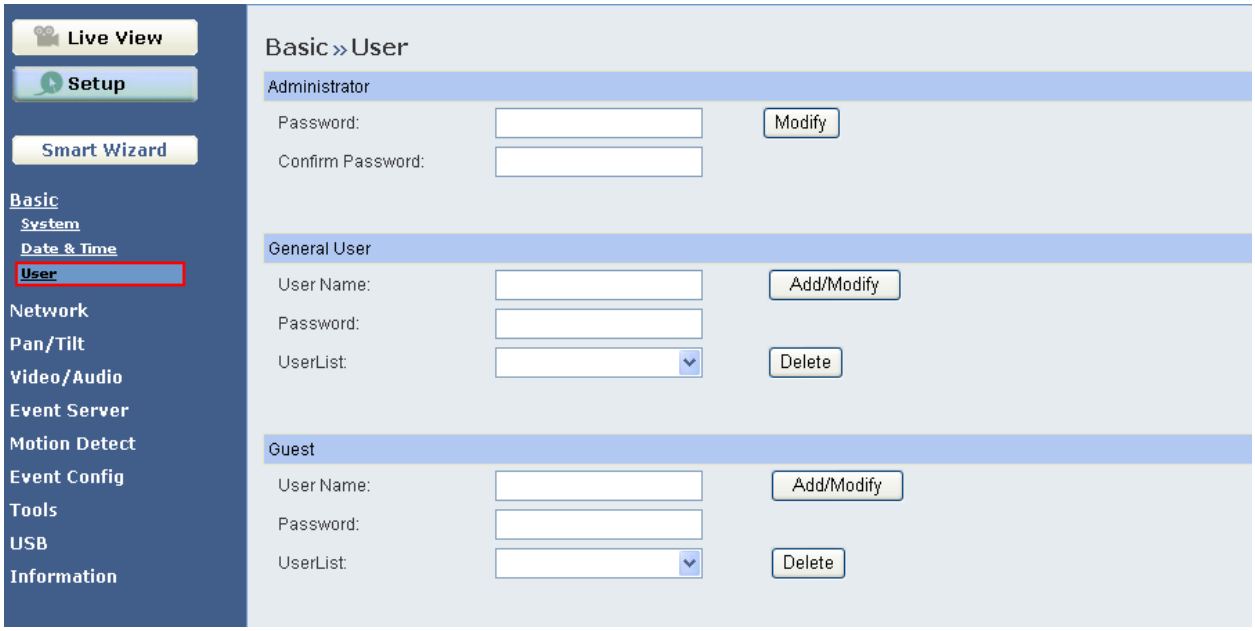
  This item allows you to set the LED illumination as desired. There are two options: **Normal** and **OFF**.

Basic >> Date & Time



- **Date & Time**
  - **TimeZone:** Select the proper time zone for the region from the pull-down menu.
  - **Synchronize with PC:** Select this option and the date & time settings of the camera will be synchronized with the connected computer.
  - **Synchronize with NTP Server:** Select this option and the time will be synchronized with the NTP Server. You need to select the proper IP address of the server and the update interval from the pull-down menu in the following two boxes. (**NOTE:** This option will work only when your camera is connected to the Internet.)
  - **Manual:** Select this option to set the date and time manually.

Basic >> User



- **Administrator**

  You can use this option to change administrator's password for your camera.

- **General User**
  - **User Name:** Enter the user's name you want to add to use the camera.
  - **Password:** Enter the password for the new user.

    When you finish, click **Add/Modify** to add the new user to the camera. To modify the user's information, select the one you want to modify from **UserList** and click **Add/Modify**.
  - **UserList:** Display the existing users of the camera. To delete a user, select the one you want to delete and click **Delete**.

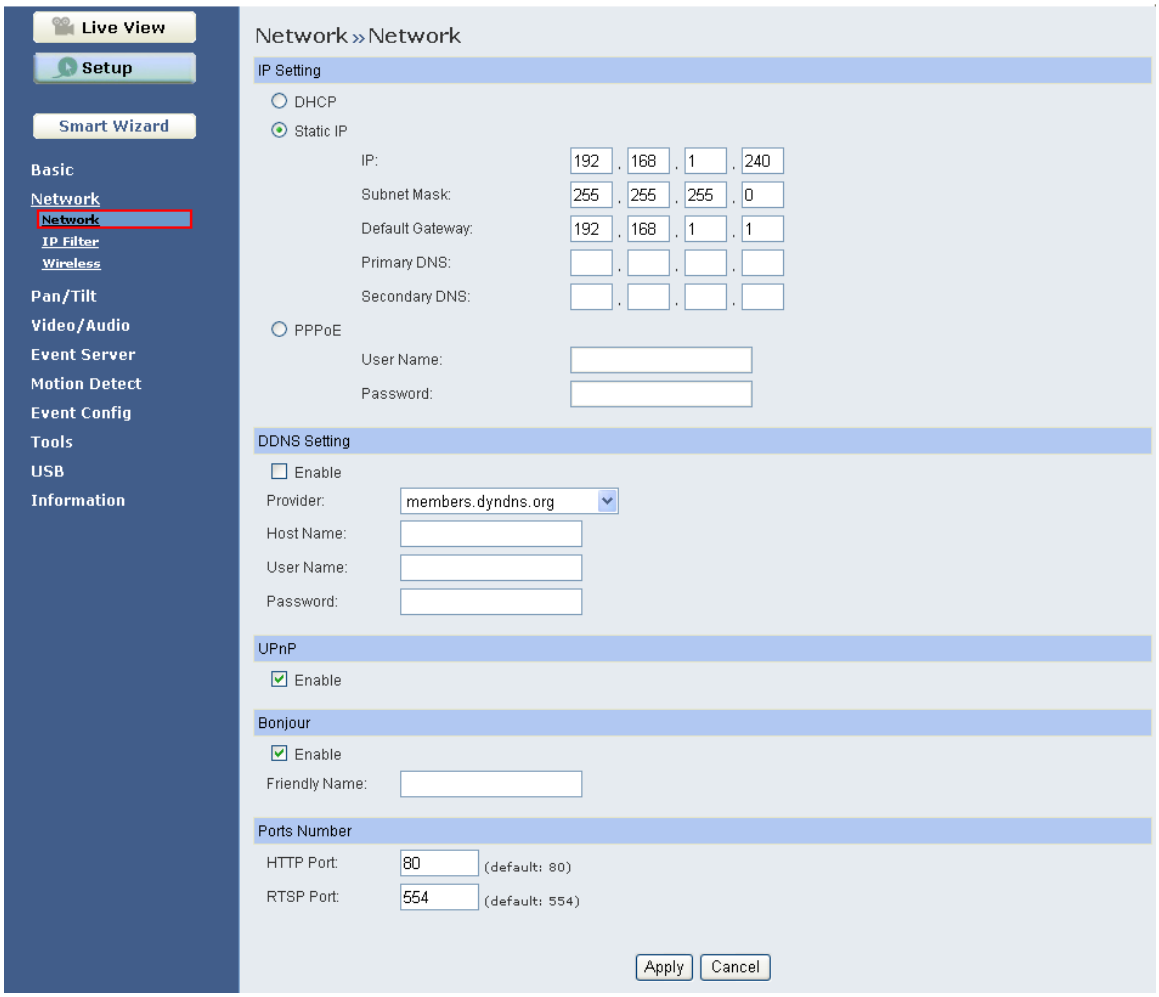
- **Guest**
  - **User Name:** Enter the guest's name you want to add to use the camera.
  - **Password:** Enter the password for the new guest.
  - **UserList:** Display the existing guests of the camera. To delete a user, select the one you want to delete and click **Delete**.

NOTE: A "General User" can access the camera and control the Function buttons of the camera's Web Configuration; a "Guest' can only view the live view image from the main page of the Web Configuration while accessing the camera. Only the "Administrator" is allowed to configure the camera through the Web Configuration.

4.3 Network Settings

The Network menu contains three sub-menus that provide the network settings for the camera, such as the IP Setting, DDNS Setting, IP Filter, and Wireless Network.

Network >> Network



- **IP Setting**

  This item allows you to select the IP connecting type and set up the related configuration.

  - **DHCP:** Select this option when your network uses the DHCP server. When the camera starts up, it will be assigned an IP address from the DHCP server automatically. It is recommended that you NOT use DCHP. You should instead use Static IP mode to set a static IP so that the IP address will never change and you will always know what it is.
  - **Static IP:** Select this option to assign the IP address for the camera directly. You can use SkyIPCam Utility to obtain the related setting values.

IP	Enter the IP address of the camera. The default setting is 192.168.1.240.
Subnet Mask	Enter the Subnet Mask of the camera. The default setting is 255.255.255.0.

Default Gateway	Enter the Default Gateway of the camera. The default setting is 192.168.1.1.
Primary/ Secondary DNS	DNS (Domain Name System) translates domain names into IP addresses. Enter the Primary DNS and Secondary DNS that are provided by ISP. It is usually recommended that you input the Default Gateway of your network, which is the IP address of your router. Check with your router manufacturer for that information. **THIS IS MANDATORY IF YOU WANT TO USE THE FTP OR EMAIL OPTIONS**

- **PPPoE:** Select this option when you use a direct connection via the ADSL modem. You should have a PPPoE account from your Internet service provider. Enter the **User Name** and **Password**. The camera will get an IP address from the ISP as starting up. If you are using a router, you will NOT use this option.

■ **DDNS Setting**

With the Dynamic DNS feature, you can assign a fixed host and domain name to a dynamic Internet IP address. Select the **Enable** option to enable this feature. Then, select the Provider from the pull-down list and enter the required information in the **Host Name**, **User Name**, and **Password** boxes. Please note that you have to sign up for DDNS service with the service provider first. DDNS function on the camera is ONLY used if you are NOT using a NAT router and your camera has a public IP address. If you ARE using the camera with a NAT router, the camera's DDNS function will not work, and you will need to use the DDNS function in your router.

■ **UPnP**

The camera supports UPnP (Universal Plug and Play), which is a set of computer network protocols that enable the device-to-device interoperability. In addition, it supports port auto mapping function so that you can access the camera if it is behind a NAT router or firewall. Select the **Enable** option to enable this feature.

■ **Bonjour**

The devices with Bonjour will automatically broadcast their own services and listen for services offered by other devices in the same network. So if your Browser supports Bonjour, you can find the camera in your local network without knowing its IP address.

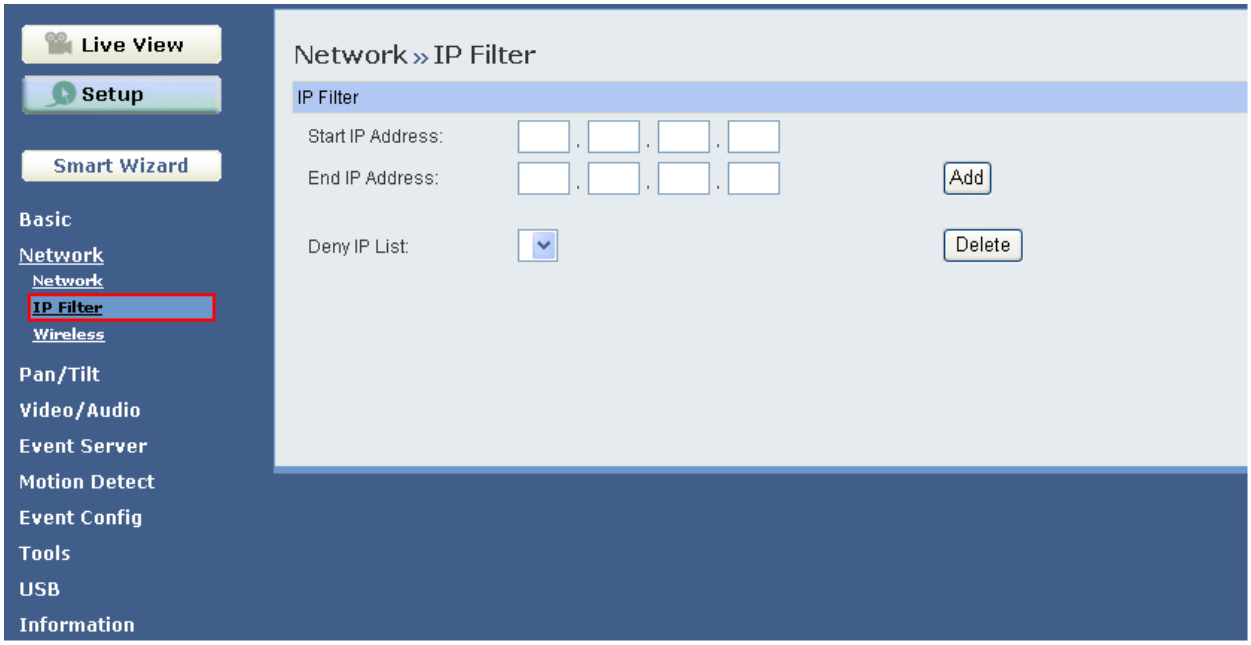
The Apple Safari supports Bonjour. You can download the complete Bonjour for IE Browser from Apple's web site by visiting http://www.apple.com/bonjour/.

■ **Ports Number**

- **HTTP Port:** The default HTTP port is **80**. Some ISP's have port 80 blocked. If you are having problems, you can change it to some other port.
- **RTSP Port:** Configure the transmission of streaming data within the network. The default RTSP (Real Time Streaming Protocol) port is **554**.

NOTE: If the camera is behind an NAT router of firewall, the suggested port to be used is anything from 1024 to 65535.

Network >> IP Filter



The IP Filter setting allows the administrator of the camera to limit the users within a certain range of IP addresses to access the camera.

- **Start/End IP Address**

  Assign a range of IP addresses that are not allowed to access the camera by entering the Start IP address and End IP address. And then, click **Add** to save the range setting. You can repeat the action to assign multiple ranges for the camera.

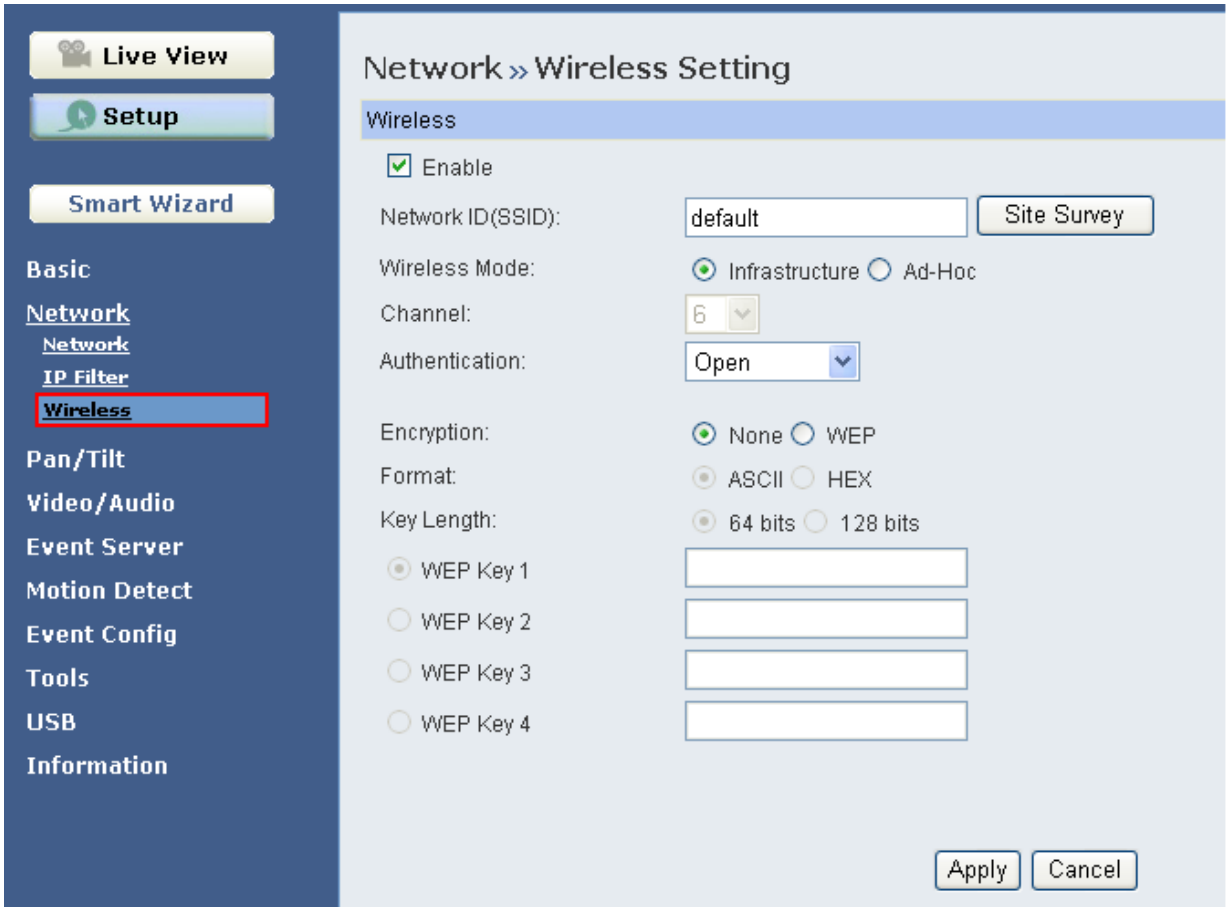
  For example, when you enter 192.168.0.50 in Start IP Address and 192.168.0.80 in End IP Address, the users whose IP address located within 192.168.0.50 ~ 192.168.0.80 will not be allowed to access the camera.

- **Deny IP List**

  The list displays the range setting(s) of IP addresses that are not allowed to access the camera. To clear the setting, select a range of IP addresses from the list and click **Delete**.

Network >> Wireless Setting

The camera supports WLAN while you use the wireless network. Select the **Enable** option to enable this feature.



- **Network ID (SSID):** To connect the camera to a specified access point or router, set a SSID for the camera to correspond with the access point's ESS-ID. To connect the camera to an Ad-Hoc wireless workgroup, set the same wireless channel and SSID to match the computer's configuration.

  Click **Site Survey** to display the available wireless networks, so that you can easily connect to one of the listed wireless networks.

- **Wireless Mode:** Select the type of wireless communication for the camera: When your camera is connected to the PC through a router or access point, select **Infrastructure**; When your camera is connected to the PC directly, select **Ad-Hoc**.)

- **Channel:** Select the appropriate channel from the list.

- **Authentication:** Select the authentication method to secure the camera from being used by unauthorized user: **Open**, **Shared-key**, **WPA-PSK**, and **WPA2-PSK**. The following table explains the four options:

Open	The default setting of Authentication mode, which communicates the key across the network.
Shared-key	Allow communication only with other devices with identical WEP settings.
WPA-PSK/ WPA2-PSK	WPA-PSK/WPA2-PSK is specially designed for the users who do not have access to network authentication servers. The user has to manually enter the starting password in their access point or gateway, as well as in each PC on the wireless network.

If you select **Open** or **Shared-key** as the Authentication mode, you need to complete the following settings:

Encryption: Select the **WEP** option to enable the data encryption feature to secure the camera within the wireless network.

Format: Once you enable the Encryption feature, you need to determine the encryption format by selecting **ASCII** or **HEX**. ASCII format causes each character you type to be interpreted as an eight-bit value. Hex format causes each pair of characters you type to be interpreted as an eight-bit value in hexadecimal (base 16) notation.

Key Length: Select the WEP key length you use: **64 bits** or **128 bits**.

WEP Key 1/2/3/4: Enter the WEP key(s) in the following boxes.

If you select **WPA-PSK** or **WPA2-PSK** as the Authentication mode, you need to complete the following settings:

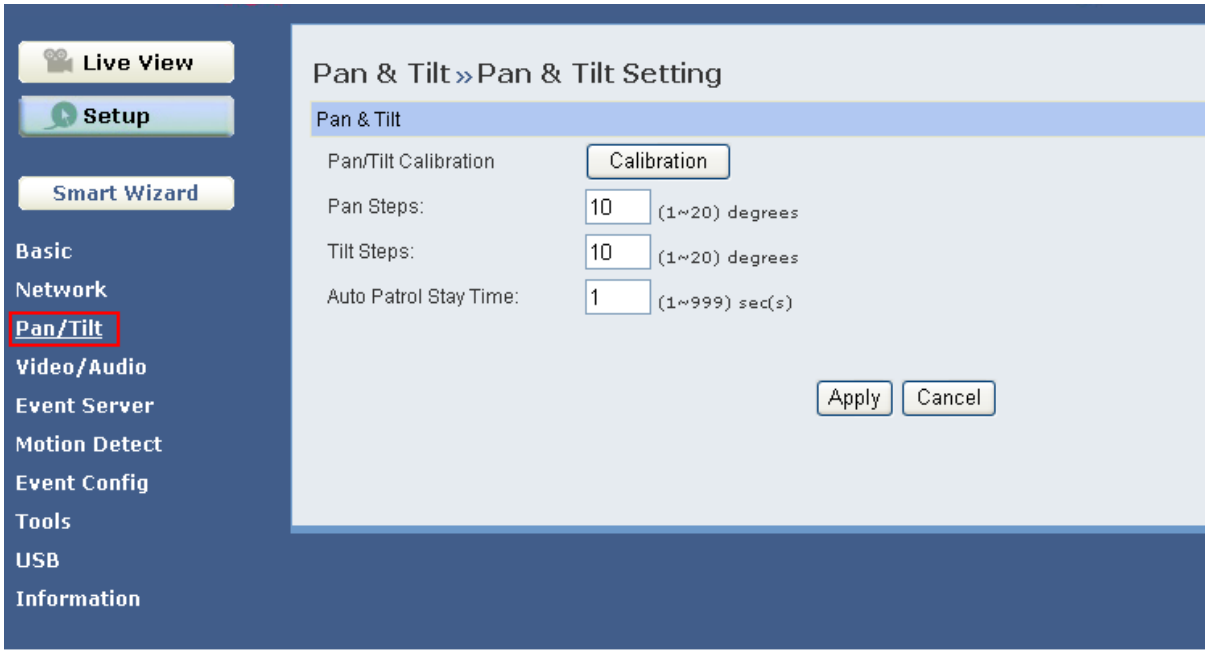
Encryption: Select **TKIP** or **AES**. TKIP (Temporal Key Integrity Protocol) changes the temporal key every 10,000 packets to insure much greater security than the standard WEP security. AES (Advanced Encryption Standard) is used to ensure the highest degree of security and authenticity for digital information.

Pre-Shared Key: This is used to identify each other in the network. Enter the name in the box, and this name must match the Pre-shared key value in the remote device.

4.4 Pan/Tilt Settings

The Pan/Tilt menu allows you to configure the pan/tilt functions of the camera.

Pan & Tilt >> Pan & Tilt Settings

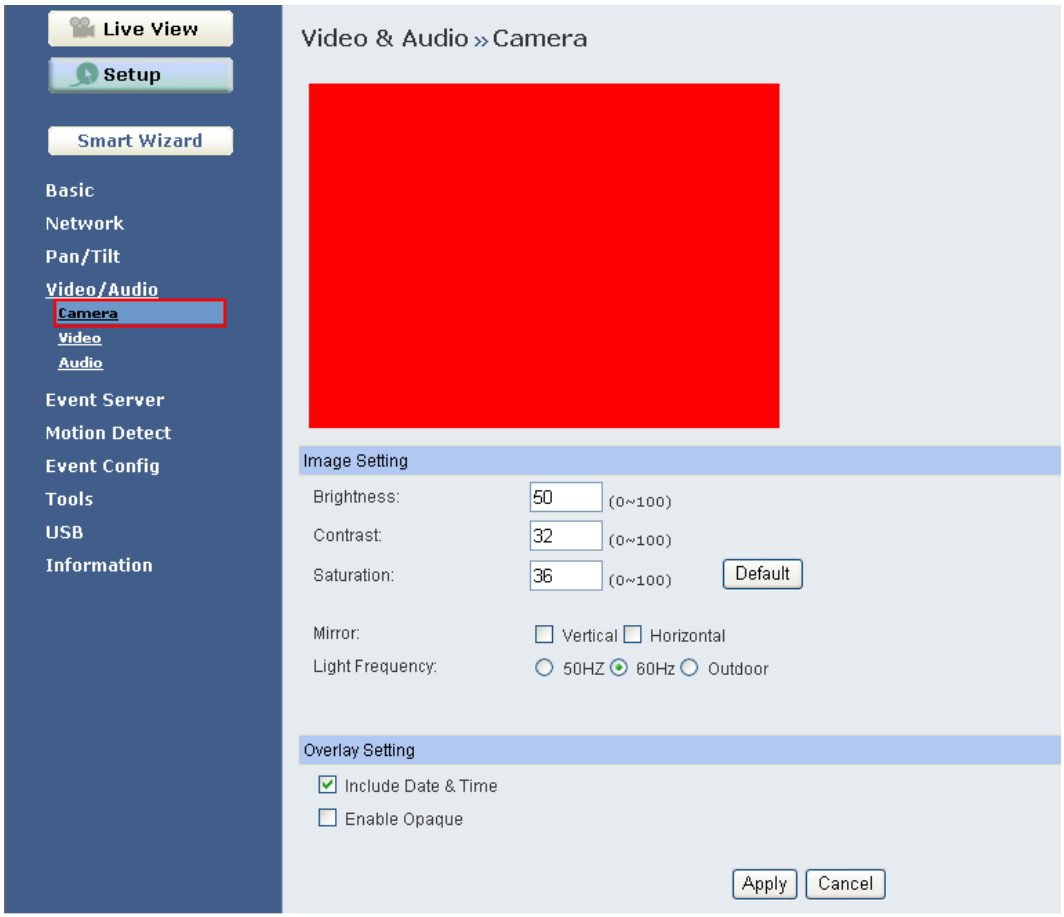


- **Pan/Tilt Calibration:** Click **Calibration** to calibrate the position of the camera lens.
- **Pan Steps:** Set the changing range (1~20 degrees) of each click on the Left/Right button.
- **Tilt Steps:** Set the changing range (1~20 degrees) of each click on the Up/Down button.
- **Auto Patrol Stay Time:** Set the stay time (1~999 seconds) of each preset positions when the camera is patrolling.

4.5 Setting up Video & Audio

The Video & Audio menu contains three sub-menus that provide the video and audio settings for the camera.

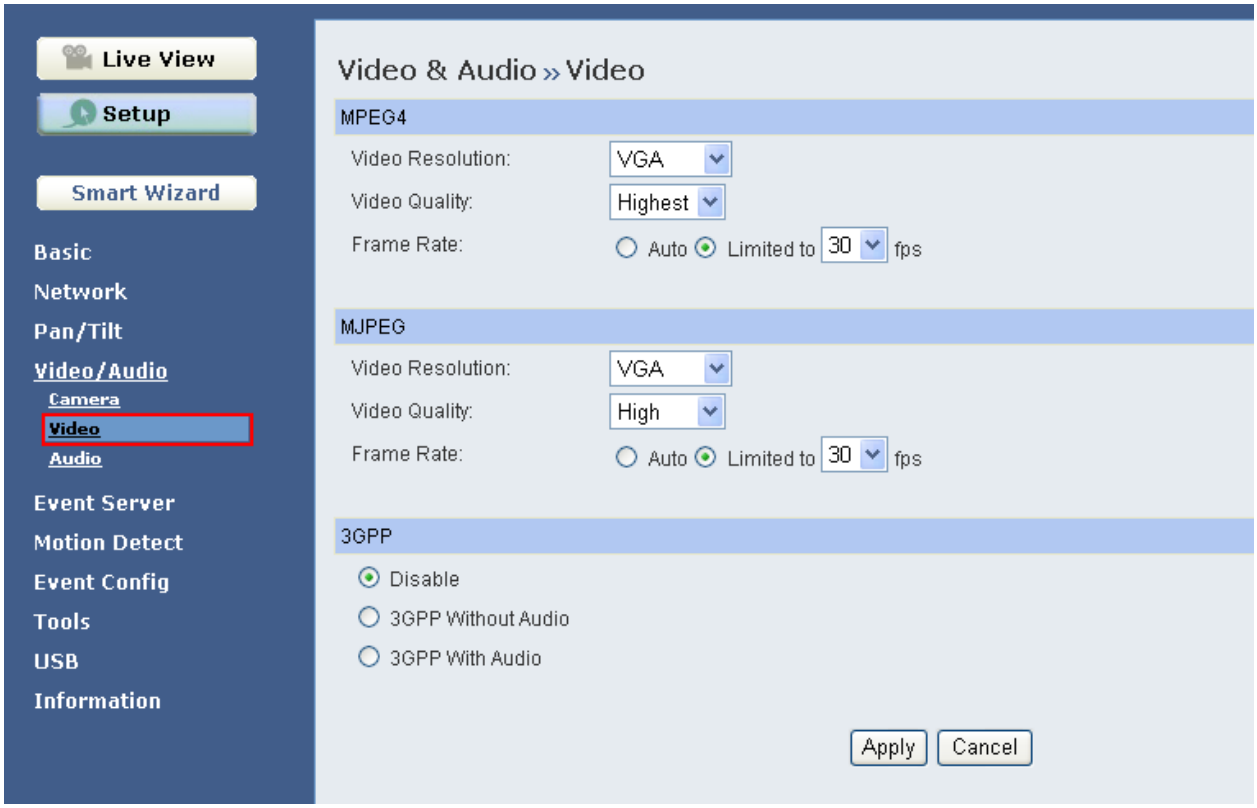
Video & Audio >> Camera



- **Image Setting**
  - **Brightness:** Adjust the brightness level from 0 ~ 100.
  - **Contrast:** Adjust the contrast level from 0 ~ 100.
  - **Saturation:** Adjust the colors level from 0 ~ 100.

    Click **Default** to restore the default settings of the three options above.
  - **Mirror:** Select the **Horizontal** option to mirror the image horizontally. Select the **Vertical** option to mirror the image vertically.
  - **Light Frequency:** Select the proper frequency according to the camera's location: **50Hz**, **60Hz**, or **Outdoor**. (**Note**: This IP Camera model is designed for indoor use only. Otherwise, the camera might be ruined by severe weather, and the image color problems will be caused.)
- **Overlay Setting**
  - **Includes Date & Time:** Select this option to display the date & time stamp on the live view screen.
  - **Enable Opaque:** Select this option to set a black background to the displayed date & time stamp.

Video & Audio >> Video



- **MPEG4**
  - **Video Resolution:** Select the desired video resolution from the three formats: **VGA**, **QVGA** and **QQVGA**. The higher setting (VGA) obtains better video quality while it uses more resource within your network.
  - **Video Quality:** Select the desired image quality from five levels: **Lowest**, **Low**, **Medium**, **High**, and **Highest**.
  - **Frame Rate:** Select **Auto** or a proper setting depending on your network status.

- **MJPEG**
  - **Video Resolution:** Select the desired video resolution from the three formats: **VGA**, **QVGA** and **QQVGA**. The higher setting (VGA) obtains better video quality while it uses more resource within your network.
  - **Video Quality:** Select the desired image quality from five levels: **Lowest**, **Low**, **Medium**, **High**, and **Highest**.
  - **Frame Rate:** Select **Auto** or a proper setting depending on your network status.

NOTE: The camera supports both MPEG4 and MJPEG compression. MJPEG capture the images in JPEG format, which require higher bandwidth to view smooth video. The administrator can control the bandwidth of each connection well through the setting options above.

■ **3GPP**

The camera supports 3GPP specification. Select the **Disable** option to disable this feature. Otherwise, select **3GPP Without Audio** or **3GPP With Audio** to transfer the video clips without or with audio.

If you use a mobile phone that supports 3GPP, you can also view the real-time streaming image captured by the camera on your phone (with the default player on the phone) by entering the RTSP link: rtsp:///(IP address of the camera)/3gp.

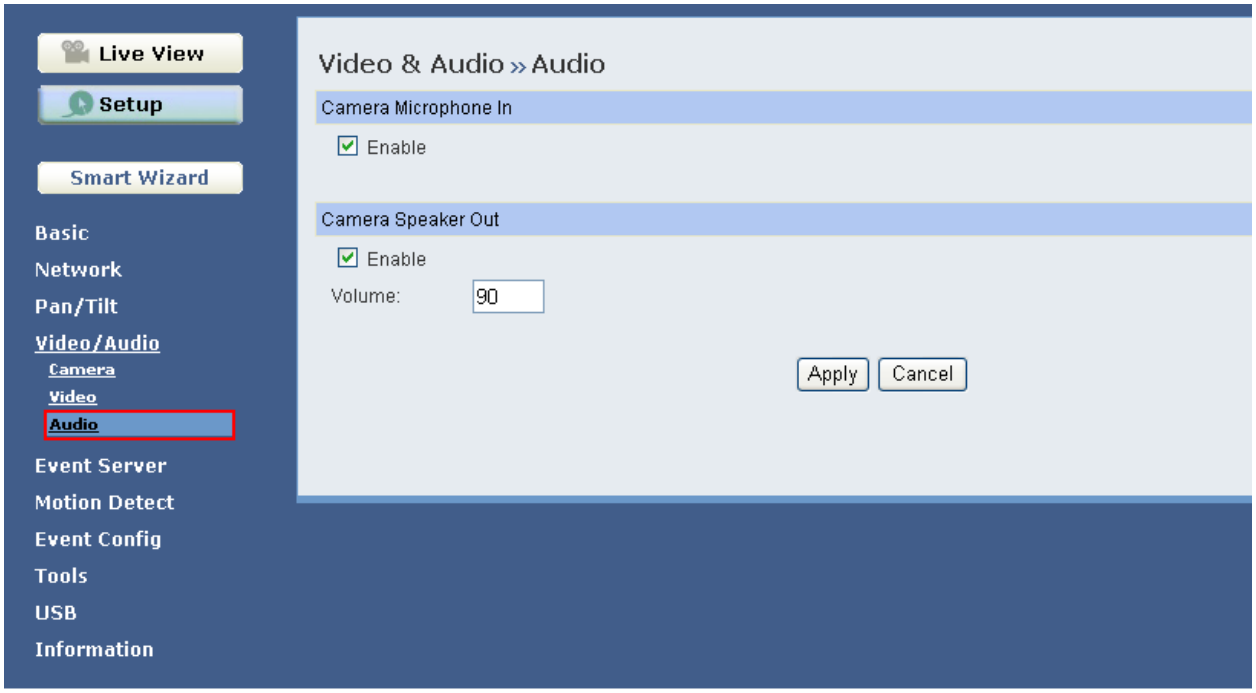
NOTE: Your 3G mobile phone must support Real Time Streaming Protocol (RTSP);

Your 3G mobile phone must support QuickTime™, RealPlayer™, or VLC Media Player.

Your 3G mobile phone must have 3G mobile internet access subscription.

Please contact your service provider when you fail to use this function.

Video & Audio >> Audio



- **Camera Microphone In**

  Select the **Enable** option to enable the camera's audio function, so that you can receive the on-site sound and voice from the camera.

- **Camera Speaker Out**

  Select the **Enable** option to enable the camera's external speaker function, so that the connected speaker can play the sound and voice from remote users through the camera.

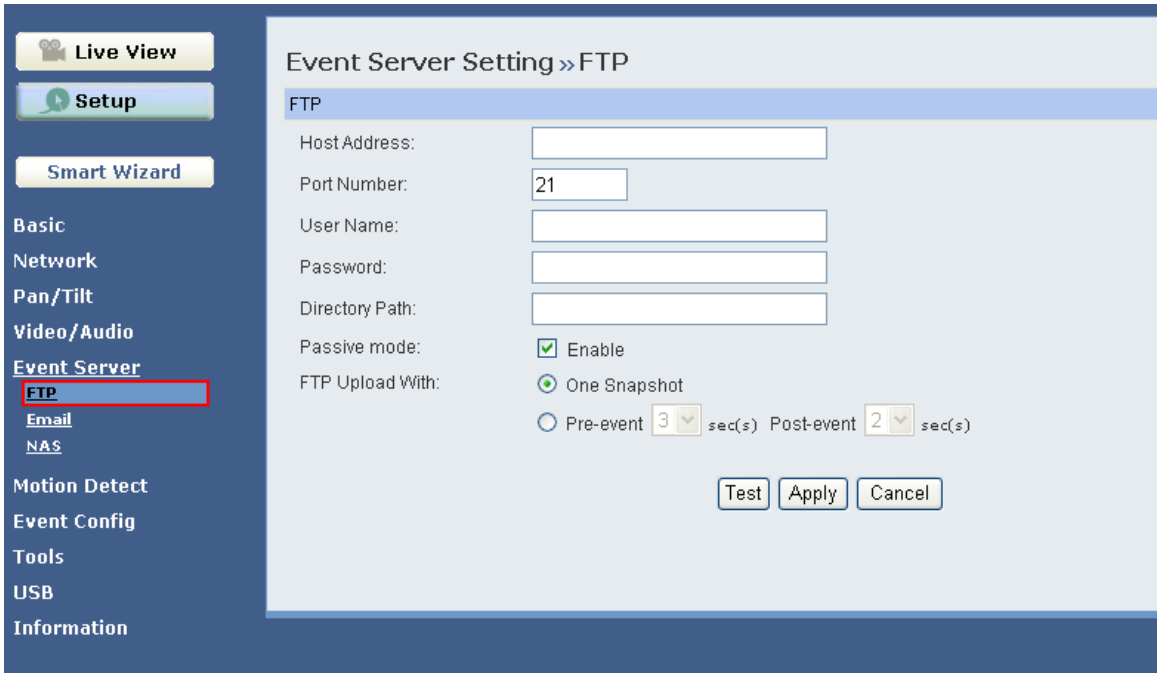
  - **Volume:** Set the speaker's volume.

4.6 Event Server Configuration

The Event Server menu contains three sub-menus that allow you to upload images to FTP, send emails that include still images, and store the images to a NAS system.

When you complete the required settings for FTP, Email, or NAS, click **Test** to find out if the related configuration is correct or not. Once the camera connects to the server successfully, click **Apply**.

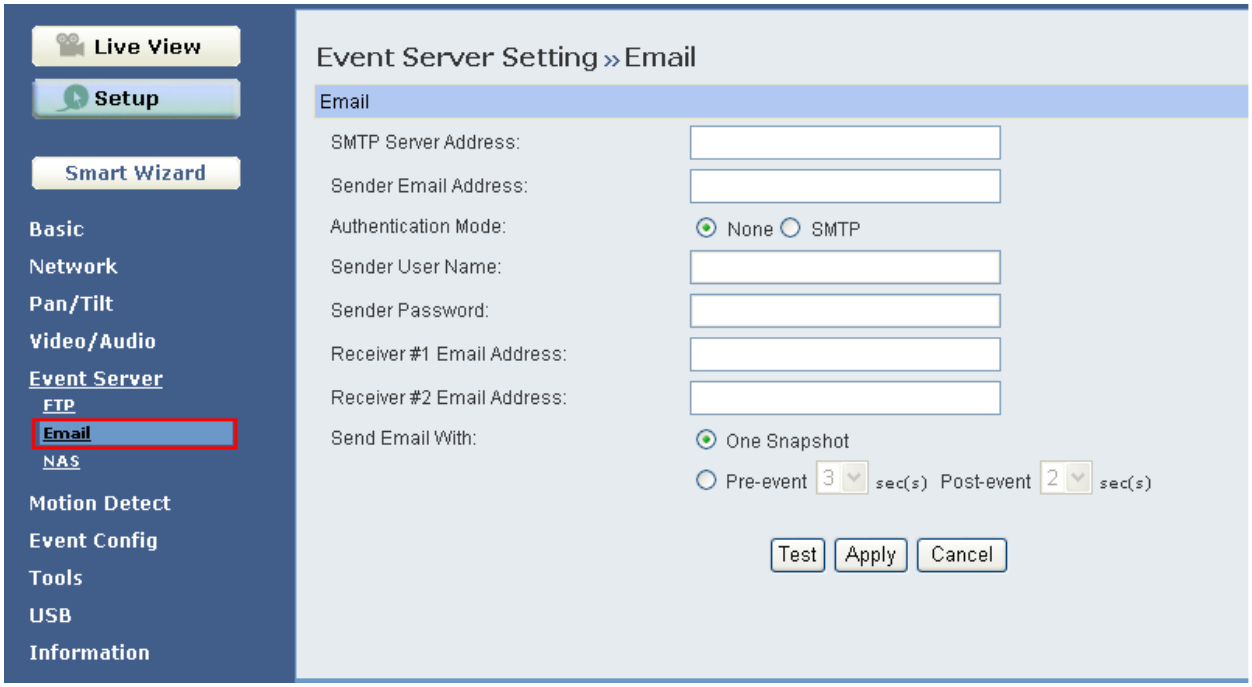
Event Server Setting>> FTP



- **FTP**
  - **Host Address:** Enter the IP address or domain name of the target FTP server. If you enter the domain name, you MUST configure DNS settings in Network / IP Setting first.
  - **Port Number:** Enter the port number used for the FTP server.
  - **User Name:** Enter the user name to log into the FTP server.
  - **Password:** Enter the password to log into the FTP server.
  - **Directory Path:** Enter the destination folder for uploading the images. For example, /Test/.
  - **Passive Mode:** Select the **Enable** option to enable passive mode. If you are having trouble, you can enable/disable this mode.
  - **FTP Upload with:** Select uploading to FTP with one snapshot image or a series of images within pre-event & post-event time period when each event is triggered.

  NOTE: The number of images uploaded each time may vary due to the network environment.

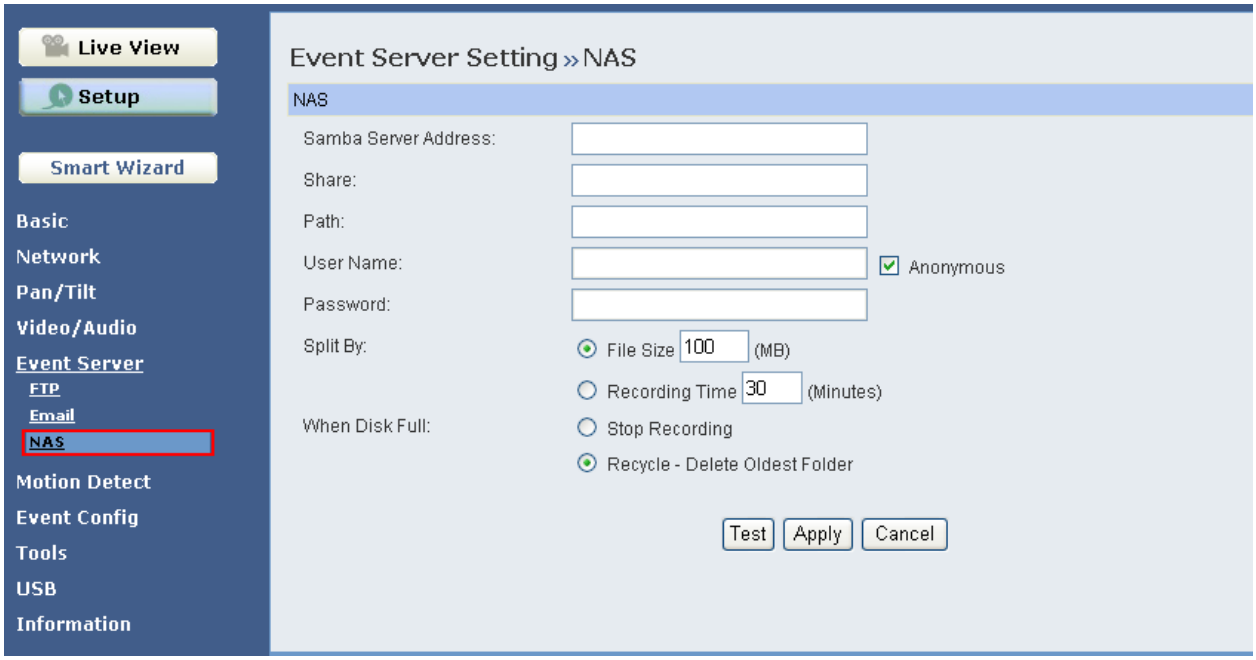
Event Server Setting >> Email



- **Email**
  - **SMTP Server Address:** Enter the mail server address. For example, mymail.com.
  - **Sender Email Address:** Enter the email address of the user who will send the email. For example, John@mymail.com.
  - **Authentication Mode:** Select None or SMTP as authentication mode.
  - **Sender User Name:** Enter the user name to log into the mail server.
  - **Sender Password:** Enter the password to log into the mail server.
  - **Receiver #1 Email Address:** Enter the first email address of the user who will receive the email.
  - **Receiver #2 Email Address:** Enter the second email address of the user who will receive the email.
  - **Send Email with:** Select sending email alerts with one snapshot image or a series of images within pre-event & post-event time period when each event is triggered.

  NOTE: The number of images sent to email may vary due to the network environment.

Event Server Setting >> NAS



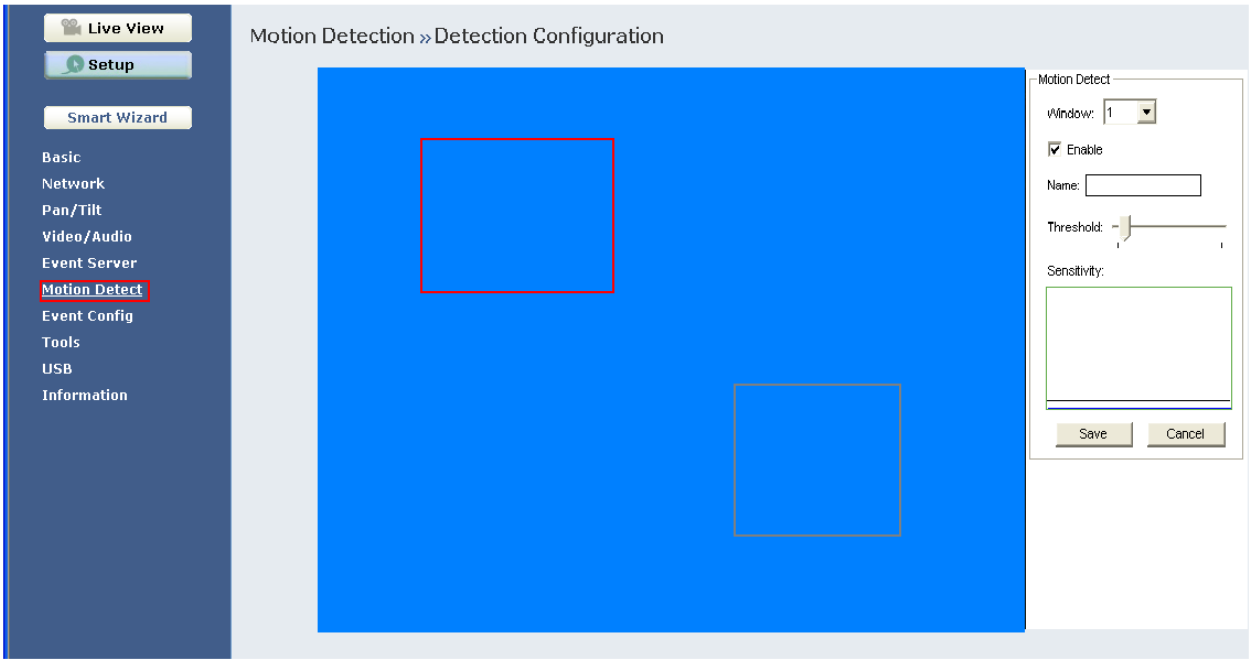
- **Samba Server Address:** Enter the IP address of the NAS (Network Attached Storage) server.
- **Share:** Assign the folder on the NAS server to share the files to users.
- **Path:** Assign the sub-folders, which are under shared folder, for uploading the files onto the NAS server. For example, /Test/.
- **User Name:** Enter the user name to log into the NAS server.
- **Password:** Enter the password to log into the NAS server.
- **Split By:** When the file is too large to be uploaded smoothly, use this option to split it by selecting File Size or Recording Time.
- **When Disk Full:** Select Stop Recording or Recycle – Delete Oldest Folder of File when the storage space on the NAS server is full.

NOTE: The recorded video files in NAS are in AVI format without audio.

4.7 Motion Detect

The Motion Detect menu contains the commands and options that allow you to enable and set up the motion detection feature for the camera. The camera provides two detecting areas.

To enable the detecting area, select **Window 1** or **2** from the pull-down list, and then select **Enable**. When the detecting area is enabled, you can use the mouse to move the detecting area and change the area coverage.



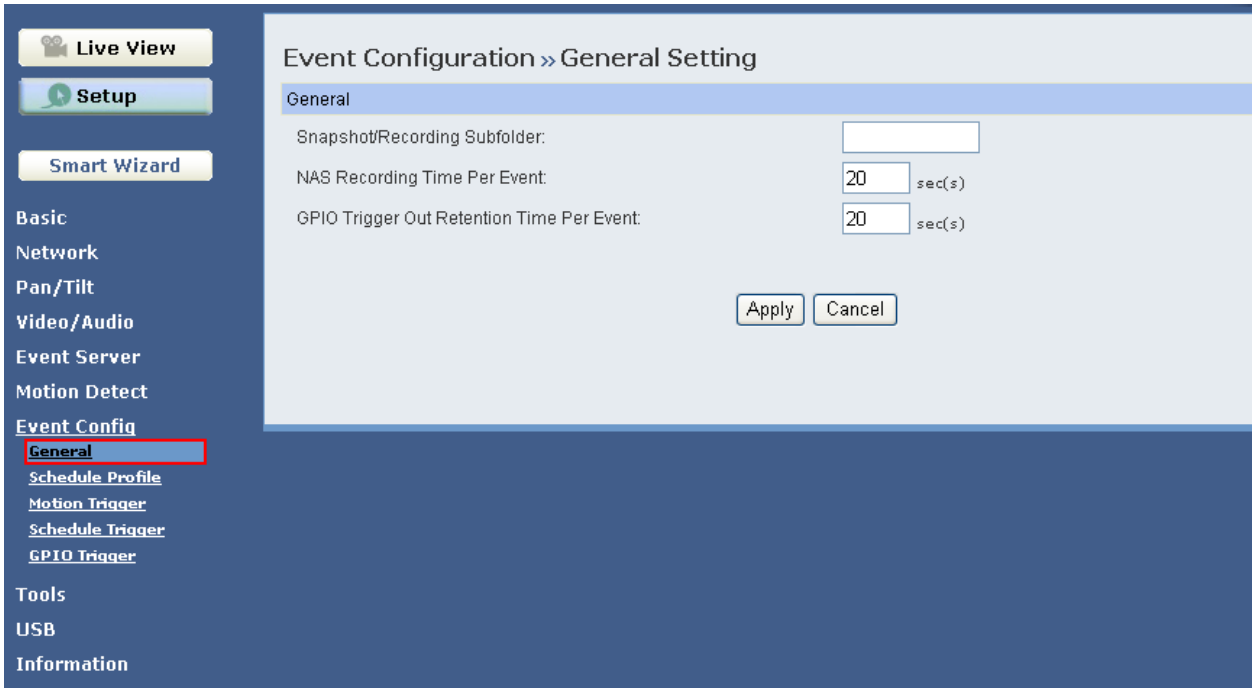
- **Name:** Assign a name to the detecting area.
- **Threshold:** Move the slide bar to adjust the sensitivity level for detecting motions to trigger image uploading or video recording.

NOTE: Sliding the Threshold bar to the right will decrease the sensitivity of motion detection; sliding the Threshold bar to the left will increase the sensitivity of motion detection.

4.8 Event Configuration

The Event Config menu contains five sub-menus that provide the commands to configure event profiles.

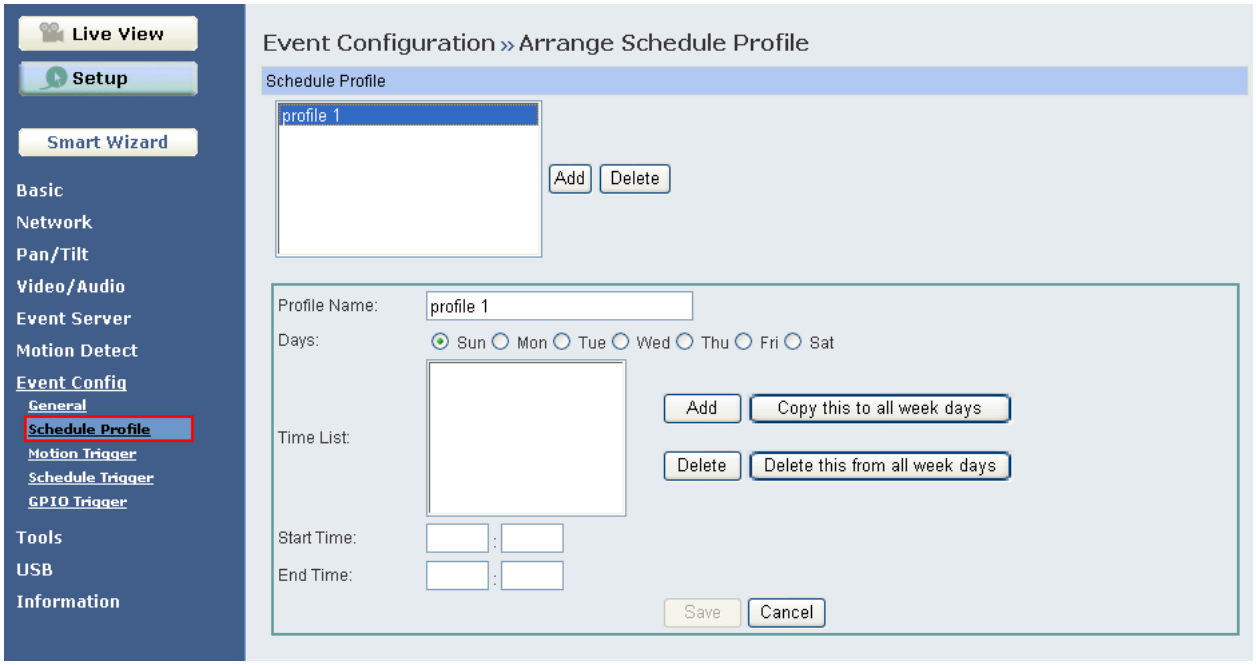
Event Configuration >> General Setting



- **Snapshot/Recording Subfolder:** You can assign a descriptive name for the subfolder to save the captured image/video files. Otherwise, leave this option blank to use the default setting.
- **NAS Recording Time Per Event:** Set up the recording time while you are using the NAS solution.
- **GPIO Trigger Out Retention Time Per Event:** Set up the retention time of the GPIO Trigger Out function.

Event Configuration >> Arrange Schedule Profile

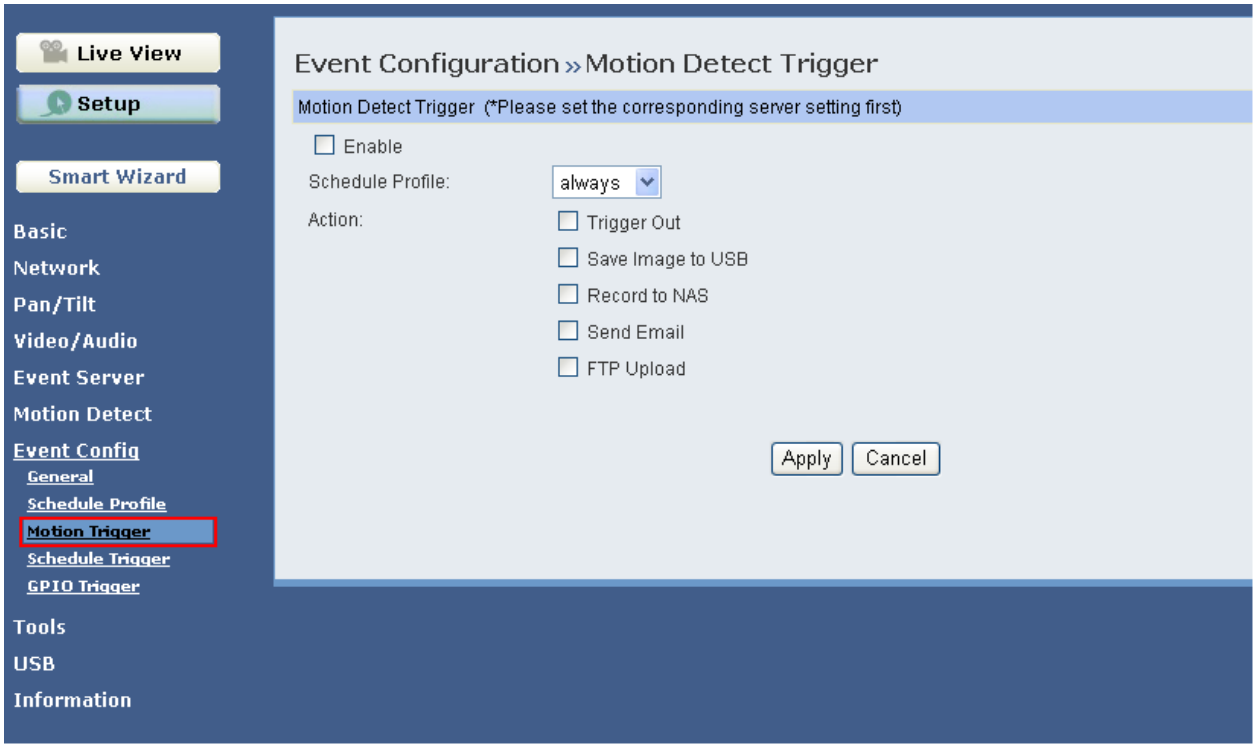
This sub-menu displays the scheduled profile(s). To customize the profile, click **Add** and then enter a descriptive name for the profile in the prompt dialog window. After entering the profile name, click **OK** and the profile is added to the Schedule Profiles list. To delete the profile, select the profile in the list and click **Delete**.



- **Profile Name:** Display the profile name that you select in the Schedule Profiles list.
- **Days:** Select the week day(s) that you want to separately assign in the schedule profile. The day that has been assigned will appear with green color.
- **Time List:** Display the time period that you have assigned within the selected week day. To assign the same time period to every day, click **Add this to all week days**; click **Delete this from all week days** to remove the selected time period from every day. Click **Delete** to remove the selected time period.
- **Start/End Time:** Enter the start and end time, and then click **Add** to assign a time period within the selected week day.

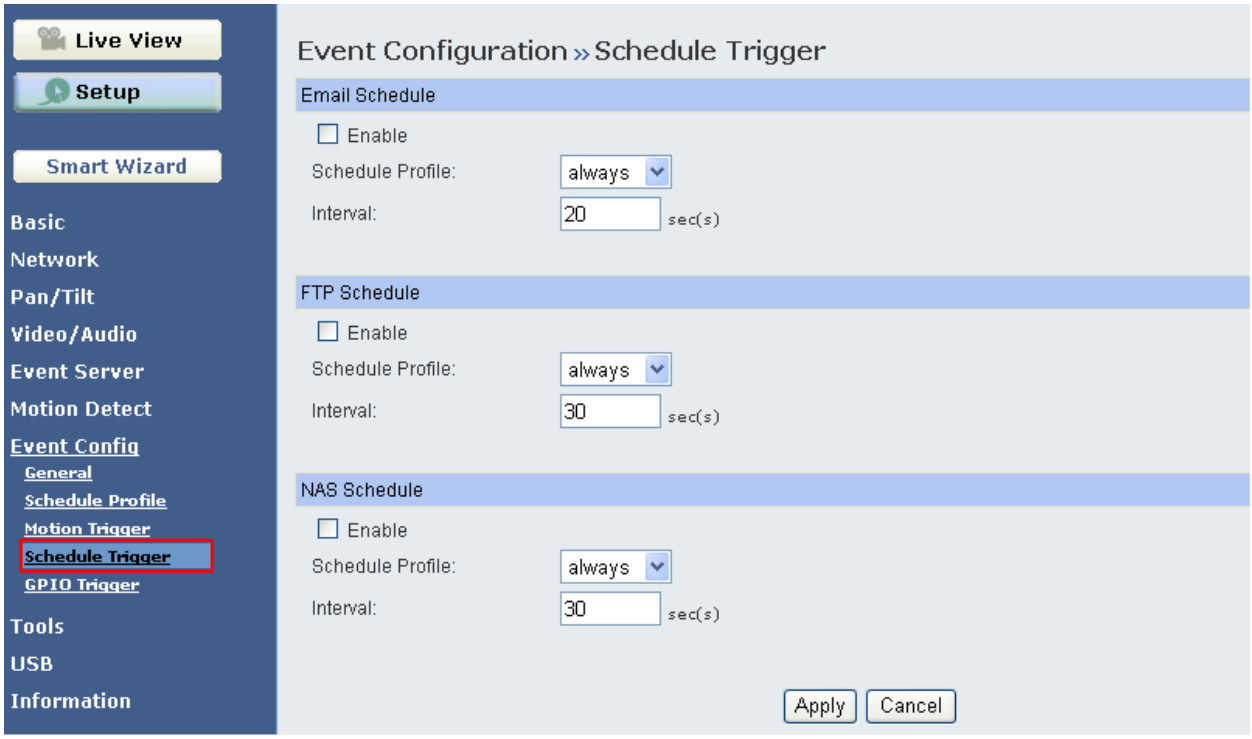
Event Configuration >> Motion Detection Trigger

Select the **Enable** option to enable the motion detection trigger function of the camera, so that you can set Trigger Out function or send captured images of the detecting area to FTP server, email receiver, NAS, or the connected USB device. You have to configure corresponding settings, such as FTP server and email server, to enable this feature.



- **Schedule Profile:** Select a schedule profile from the pull-down list.
- **Action:** Set the **Trigger Out** function or select the destination of the captured images: **Save Image to USB, Record to NAS, Send Email**, or **FTP Upload**.

Event Configuration >> Schedule Trigger



You can separately configure the schedule for trigger function of the camera by **Email**, **FTP,** or **NAS**.

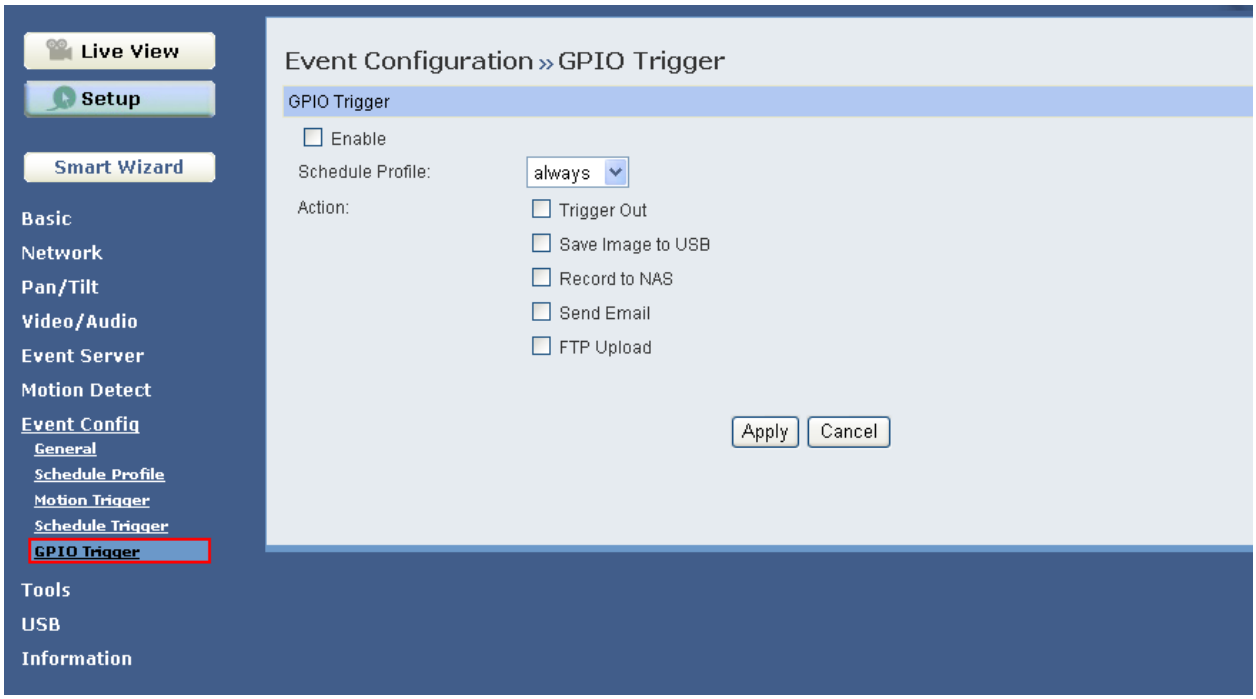
Select the **Enable** option for each desired function, and then select a **Schedule Profile** from the pull-down list and set up the **Interval** time.

NOTE: If the setting value of the **NAS Recording Time Per Event** option in General Setting is longer than the **Interval** time in NAS Schedule, the recorded file will be a continuous video clip.

For example, if you set the **NAS Recording Time Per Event** as 10 seconds and the **Interval** as 5 seconds, the recorded file will become a non-stop video clip, since the camera will record a 10-second video clip within each 5 seconds.

Event Configuration >> GPIO Trigger

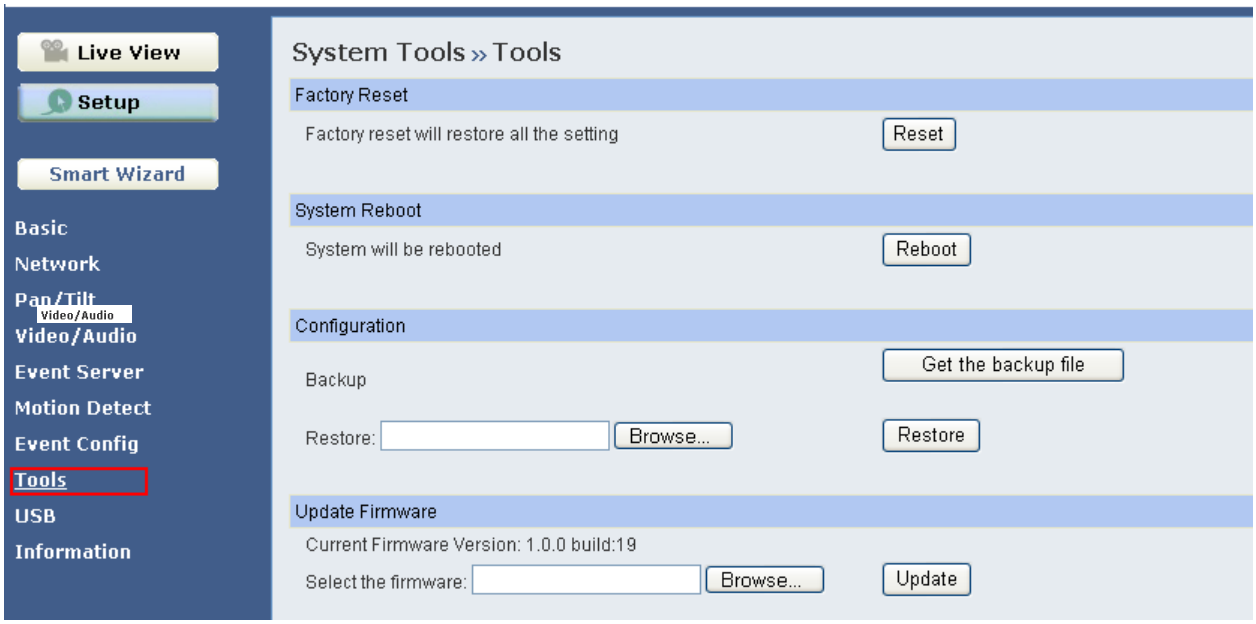
Select the **Enable** option to enable the GPIO trigger function of the camera, so that you can set Trigger Out function or send captured images of the detecting area to FTP server, email receiver, NAS server, or the connected USB device. You have to configure corresponding settings, such as FTP server and email server, to enable this feature.



- **Schedule Profile:** Select a schedule profile from the pull-down list.
- **Action:** Set the **Trigger Out** function or select the destination of the captured images: **Save Image to USB, Record to NAS, Send Email**, or **FTP Upload**.

4.9 Tools

The Tools menu provides the commands that allow you to restart or reset the camera. You can also backup and restore your configuration, and upgrade the firmware for the camera.



- **Factory Reset**

  Click **Reset** to restore all factory default settings for the camera.

- **System Reboot**

  Click **Reboot** to restart the camera just like turning the device off and on. The camera configuration will be retained after rebooting.

- **Configuration**

  You can save your camera configuration as a backup file on your computer. Whenever you want to resume the original settings, you can restore them by retrieving the backup file.

  - **Backup:** Click **Get the backup file** to save the current configuration of the camera.
  - **Restore:** Click **Browse** to locate the backup file and then click **Restore**.

- **Update Firmware**

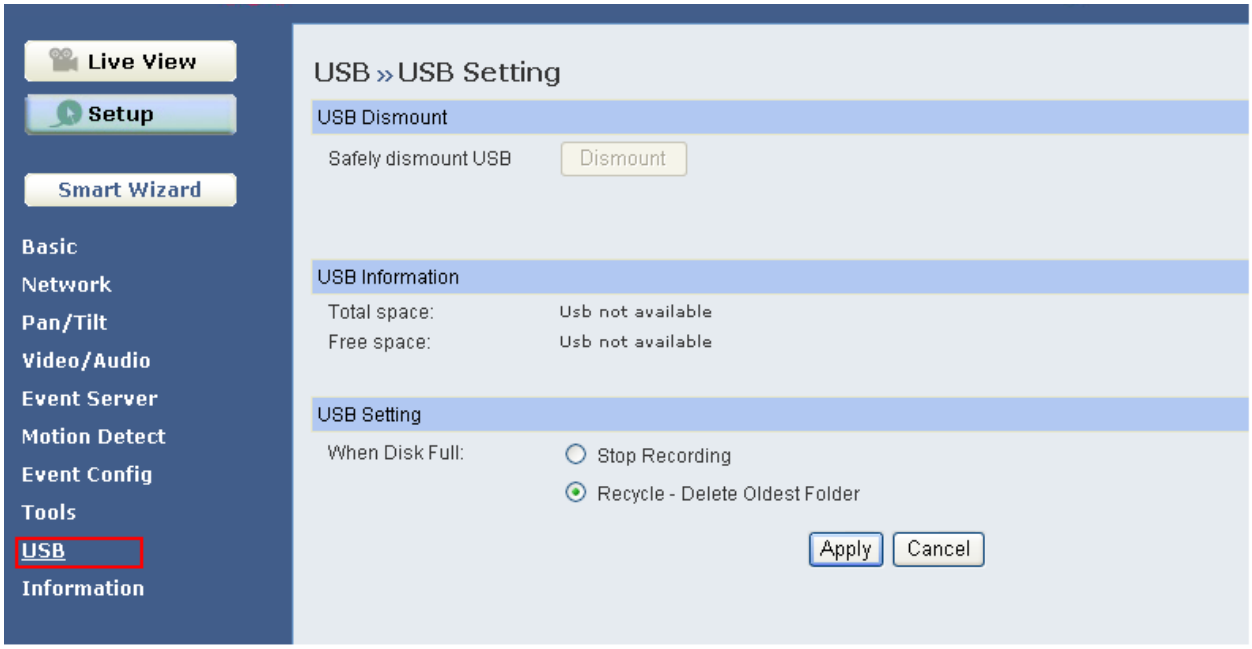
  This item displays the current firmware version. You can upgrade the firmware for your camera once you has obtained a latest version of the firmware.

  - **Select the firmware:** Click **Browse** to locate the new firmware file and then click **Update**.

NOTE: Make sure to keep the camera connected to the power source during the process of upgrading firmware. Otherwise, the camera might be damaged because of the failure in upgrading firmware.

4.10 USB

The USB menu provides the information and controls of the connected USB device.



- **USB Dismount**

  To safely remove the connected USB device, you can press the Dismount button for four seconds on the camera or click **Dismount** from this page.

- **USB Information**

  Display the **Total space** and **Free space** of the USB device.

- **USB Setting**

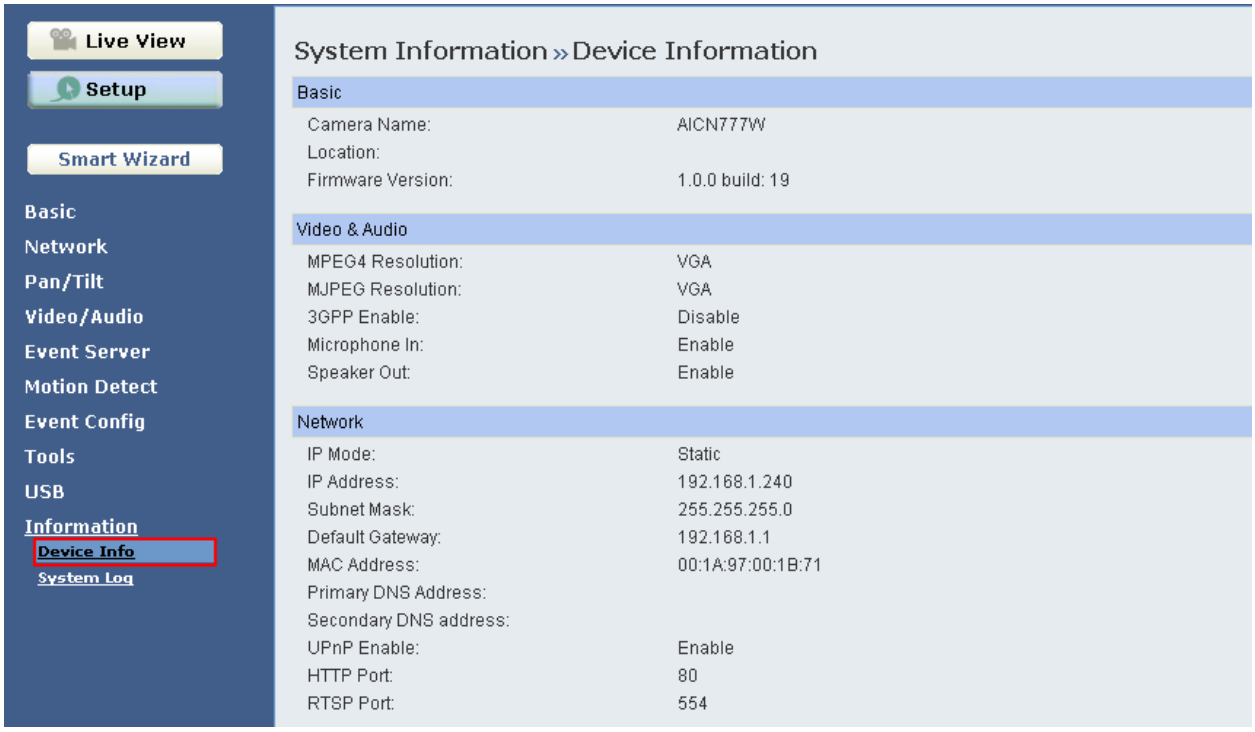
  - **When Disk Full:** Select **Stop Recording** or **Recycle – Delete Oldest Folder of File** when the storage space on the USB device is full.

NOTE: This feature only supports USB storage devices with FAT & FAT32 file system, and it doesn't support the ones with NTFS file system. The connected USB storage device can only be used to store still images, and it is not recommended to use the USB device as your major storage device.

4.11 Information

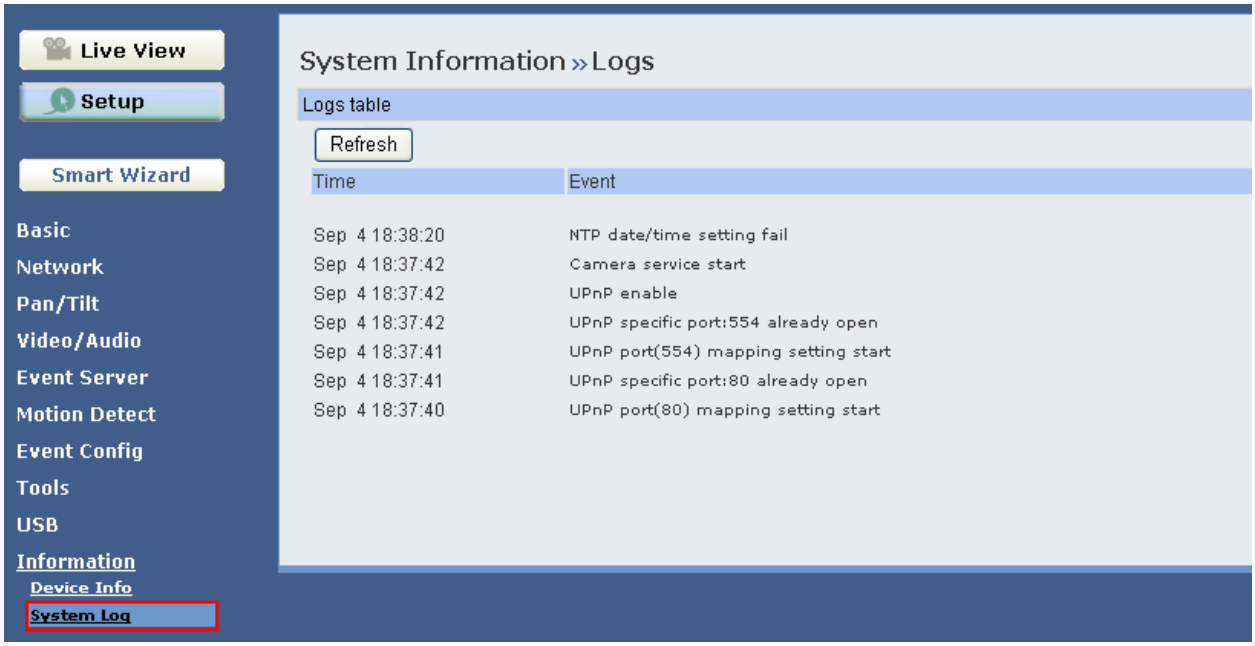
The Information menu displays the current configuration and events log of the camera.

■ **Device Info**



Display the Basic, Video & Audio, and Network settings of the camera.

■ **System Log**



The Logs table displays the event logs recorded by the system.

APPENDIX

A.1 Specification

- **Image Sensor**

Sensor	1/4" color CMOS
Resolution	640x480

- **Video**

Compression	MPEG4/MJPEG
Video resolution	VGA/QVGA/QQVGA; 30fps max.

- **Audio**

Input	Built-in MIC
Output	Headphone output jack (Mono)
Codec	PCM/AMR (ARM is for 3GPP only)

- **User Interface**

LAN	One RJ-45 port
Antenna	One external antenna
Reset	One Reset button
USB	USB 1.1 port, with one dismount button Power distribution: 500mA Max. Support FAT, FAT32 file system
GPIO	1 in/1 out connectors Input: active high: 9~40V DC; dropout: 0V DC Output: close circuit current 70mA AC or 100mA DC maximum, 30 Ohm; open circuit voltage 240V AC or 350V DC maximum
LEDs	Power LED (amber); Link LED (green)

- **System Hardware**

Processor	ARM9 base
RAM	32MB SDRAM
ROM	8MB NOR Flash
Power	DC 12V

- **Communication**

LAN	10/100Mbps Fast Ethernet, auto-sensed, Auto-MDIX
WLAN	IEEE 802.11b/g
Protocol support	TCP/IP, UDP, ICMP, DHCP, NTP, DNS, DDNS, SMTP, FTP, Samba, PPPoE, UPnP, Bonjour, RTP, RTSP, RTCP

- **Pan/Tilt**

Pan	165 degree (left) to 165 degree (right)
Tilt	90 degree (up) to 15 degree (down)

- **Software**

OS Support	Windows 2000/XP/Vista
Browser	Internet Explorer 6.0 or above Apple Safari 2 or above Mozilla Firefox 2.00 or above
Software	**"**SkyIPCam View" for playback/recording/ configuration features

- **Operating Environment**

Temperature	- Operation: 0°C ~ 45°C - Storage: -15°C ~ 60°C
Humidity	- Operation: 20% ~ 85% non-condensing - Storage: 0% ~ 90% non-condensing

- **EMI**

  FCC Class B, CE Class B

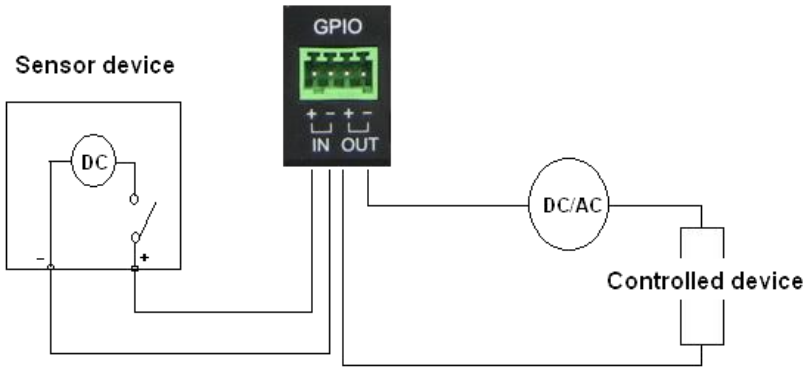
A.2 GPIO Terminal Application

Typically used in association with programming scripts for developing applications for motion detection, event triggering, alarm notification via e-mail, and a variety of external control functions. The GPIO connectors are located on the rear panel of the camera, which provide the interface of connecting the sensor device (IN) and controlled device (OUT).

Connector Pin Assignment

PIN	SPECIFICATION
IN	Active High voltage 9~40V DC; Dropout-out voltage 0V DC
OUT	Close circuit current 70mA AC or 100mA DC maximum, Output resistance 30 Ohm; Open circuit voltage 240V AC or 350V DC maximum

Interface Schematic



A.3 Glossary of Terms

NUMBERS

10BASE-T 10BASE-T is Ethernet over UTP Category III, IV, or V unshielded twisted-pair media.

100BASE-TX The two-pair twisted-media implementation of 100BASE-T is called 100BASE-TX.

A

ADPCM Adaptive Differential Pulse Code Modulation, a new technology improved from PCM, which encodes analog sounds to digital form.

AMR AMR (Adaptive Multi-Rate) is an audio data compression scheme optimized for speech coding, which is adopted as the standard speech codec by 3GPP.

Applet Applets are small Java programs that can be embedded in an HTML page. The rule at the moment is that an applet can only make an Internet connection to the computer form that the applet was sent.

ASCII American Standard Code For Information Interchange, it is the standard method for encoding characters as 8-bit sequences of binary numbers, allowing a maximum of 256 characters.

ARP Address Resolution Protocol. ARP is a protocol that resides at the TCP/IP Internet layer that delivers data on the same network by translating an IP address to a physical address.

AVI Audio Video Interleave, it is a Windows platform audio and video file type, a common format for small movies and videos.

B

BOOTP Bootstrap Protocol is an Internet protocol that can automatically configure a network device in a diskless workstation to give its own IP address.

C

Communication Communication has four components: sender, receiver, message, and medium. In networks, devices and application tasks and processes communicate messages to each other over media. They represent the sender and receivers. The data they send is the message. The cabling or transmission method they use is the medium.

Connection In networking, two devices establish a connection to communicate with each other.

D

DHCP Developed by Microsoft, DHCP (Dynamic Host Configuration Protocol) is a protocol for assigning dynamic IP addresses to devices on a network. With dynamic addressing, a device can have a different IP address every time it connects to the network. In some systems, the device's IP address can even change while it is still connected. It also supports a mix of static and dynamic IP addresses. This simplifies the task for network administrators because the software keeps track of IP addresses rather than requiring an administrator to manage the task. A new computer can be added to a network without the hassle of manually assigning it a unique IP address. DHCP allows the specification for the service provided by a router, gateway, or other network device that automatically assigns an IP address to any device that requests one.

DNS Domain Name System is an Internet service that translates domain names into IP addresses. Since domain names are alphabetic, they're easier to remember. The Internet however, is really based on IP addresses every time you use a domain name the DNS will translate the name into the corresponding IP address. For example, the domain name *www.network_camera.com* might translate to *192.167.222.8*.

E

Enterprise network An enterprise network consists of collections of networks connected to each other over a geographically dispersed area. The enterprise network serves the needs of a widely

	distributed company and operates the company's mission-critical applications.
Ethernet	The most popular LAN communication technology. There are a variety of types of Ethernet, including 10Mbps (traditional Ethernet), 100Mbps (Fast Ethernet), and 1,000Mbps (Gigabit Ethernet). Most Ethernet networks use Category 5 cabling to carry information, in the form of electrical signals, between devices. Ethernet is an implementation of CSMA/CD that operates in a bus or star topology.

F

Fast Ethernet	Fast Ethernet, also called 100BASE-T, operates at 10 or 100Mbps per second over UTP, STP, or fiber-optic media.
Firewall	Firewall is considered the first line of defense in protecting private information. For better security, data can be encrypted. A system designed to prevent unauthorized access to or from a private network. Firewalls are frequently used to prevent unauthorized Internet users from accessing private networks connected to the Internet, especially Intranets all messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria.

G

Gateway	A gateway links computers that use different data formats together.
Group	Groups consist of several user machines that have similar characteristics such as being in the same department.

H

HEX	Short for hexadecimal refers to the base-16 number system, which consists of 16 unique symbols: the numbers 0 to 9 and the letters A to F. For example, the decimal number 15 is represented as F in the hexadecimal numbering system. The hexadecimal system is useful because it can represent every byte (8 bits) as two consecutive hexadecimal digits. It is easier for humans to read hexadecimal numbers than binary numbers.

I

Intranet	This is a private network, inside an organization or company that uses the same software you will find on the public Internet. The only difference is that an Intranet is used for internal usage only.
Internet	The Internet is a globally linked system of computers that are logically connected based on the Internet Protocol (IP). The Internet provides different ways to access private and public information worldwide.
Internet address	To participate in Internet communications and on Internet Protocol-based networks, a node must have an Internet address that identifies it to the other nodes. All Internet addresses are IP addresses
IP	Internet Protocol is the standard that describes the layout of the basic unit of information on the Internet (the *packet*) and also details the numerical addressing format used to route the information. Your Internet service provider controls the IP address of any device it connects to the Internet. The IP addresses in your network must conform to IP addressing rules. In smaller LANs, most people will allow the DHCP function of a router or gateway to assign the IP addresses on internal networks.
IP address	IP address is a 32-binary digit number that identifies each sender or receiver of information that is sent in packets across the Internet. For example 80.80.80.69 is an IP address. When you "call" that number, using any connection methods, you get connected to the computer that "owns" that IP address.
ISP	ISP (Internet Service Provider) is a company that maintains a network that is linked to the Internet by way of a dedicated communication line. An ISP offers the use of its dedicated communication lines to companies or individuals who can't afford the high monthly cost for a direct connection.

J

JAVA Java is a programming language that is specially designed for writing programs that can be safely downloaded to your computer through the Internet without the fear of viruses. It is an object-oriented multi-thread programming best for creating applets and applications for the Internet, Intranet and other complex, distributed network.

L

LAN Local Area Network a computer network that spans a relatively small area sharing common resources. Most LANs are confined to a single building or group of buildings.

M

MJPEG MJPEG (Motion JPEG) composes a moving image by storing each frame of a moving picture sequence in JPEG compression, and then decompressing and displaying each frame at rapid speed to show the moving picture.

MPEG4 MPEG4 is designed to enable transmission and reception of high-quality audio and video over the Internet and next-generation mobile telephones.

N

NAT Network Address Translator generally applied by a router that makes many different IP addresses on an internal network appear to the Internet as a single address. For routing messages properly within your network, each device requires a unique IP address. But the addresses may not be valid outside your network. NAT solves the problem. When devices within your network request information from the Internet, the requests are forwarded to the Internet under the router's IP address. NAT distributes the responses to the proper IP addresses within your network.

Network A network consists of a collection of two or more devices, people, or components that communicate with each other over physical or virtual media. The most common types of network are:

LAN – (local area network): Computers are in close distance to one another. They are usually in the same office space, room, or building.

WAN – (wide area network): The computers are in different geographic locations and are connected by telephone lines or radio waves.

NWay Protocol A network protocol that can automatically negotiate the highest possible transmission speed between two devices.

P

PCM PCM (Pulse Code Modulation) is a technique for converting analog audio signals into digital form for transmission.

PING Packet Internet Groper, a utility used to determine whether a specific IP address is accessible. It functions by sending a packet to the specified address and waits for a reply. It is primarily used to troubleshoot Internet connections.

PPPoE Point-to-Point Protocol over Ethernet. PPPoE is a specification for connecting the users on an Ethernet to the Internet through a common broadband medium, such as DSL or cable modem. All the users over the Ethernet share a common connection.

Protocol Communication on the network is governed by sets of rules called protocols. Protocols provide the guidelines devices use to communicate with each other, and thus they have different functions. Some protocols are responsible for formatting and presenting and presenting data that will be transferred from file server memory to the file server's net work adapter Others are responsible for filtering information between networks and forwarding data to its destination. Still other protocols dictate how data is transferred across the medium, and how servers respond to workstation requests and vice versa. Common network protocols responsible for the presentation and formatting of data for a network operating system are the Internetwork Packet Exchange (IPX) protocol or the Internet Protocol (IP).

	Protocols that dictate the format of data for transferors the medium include token-passing and Carrier Sense Multiple Access with Collision Detection (CSMA/CD), implemented as token-ring, ARCNET, FDDI, or Ethernet. The Router Information Protocol (RIP),a part of the Transmission Control Protocol/Internet Protocol (TCP/IP) suite, forwards packets from one network to another using the same network protocol.
R	
RJ-45	RJ-45 connector is used for Ethernet cable connections.
Router	A router is the network software or hardware entity charged with routing packets between networks.
RTP	RTP (Real-time Transport Protocol) is a data transfer protocol defined to deliver **live media** to the clients at the same time, which defines the transmission of video and audio files in real time for Internet applications.
RTSP	RTSP (Real-time Streaming Protocol) is the standard used to transmit **stored media** to the client(s) at the same time, which provides client controls for random access to the content stream.
S	
Server	It is a simple computer that provides resources, such as files or other information.
SIP	SIP (Session Initiated Protocol) is a standard protocol that delivers the real-time communication for Voice over IP (VoIP), which establishes sessions for features such as audio and video conferencing.
SMTP	The Simple Mail Transfer Protocol is used for Internet mail.
SNMP	Simple Network Management Protocol. SNMP was designed to provide a common foundation for managing network devices.
Station	In LANs, a station consists of a device that can communicate data on the network. In FDDI, a station includes both physical nodes and addressable logical devices. Workstations, single-attach stations, dual-attach stations, and concentrators are FDDI stations.
Subnet mask	In TCP/IP, the bits used to create the subnet are called the subnet mask.
T	
(TCP/IP)	Transmission Control Protocol/Internet Protocol is a widely used transport protocol that connects diverse computers of various transmission methods. It was developed y the Department of Defense to connect different computer types and led to the development of the Internet.
Transceiver	A transceiver joins two network segments together. Transceivers can also be used to join a segment that uses one medium to a segment that uses a different medium. On a 10BASE-5 network, the transceiver connects the network adapter or other network device to the medium. Transceivers also can be used on 10BASE-2 or 10BASE-T networks to attach devices with AUI ports.
U	
UDP	The User Datagram Protocol is a connectionless protocol that resides above IP in the TCP/IP suite
User Name	The USERNAME is the unique name assigned to each person who has access to the LAN.
Utility	It is a program that performs a specific task.
UTP	Unshielded twisted-pair. UTP is a form of cable used by all access methods. It consists of several pairs of wires enclosed in an unshielded sheath.
W	

WAN	Wide-Area Network. A wide-area network consists of groups of interconnected computers that are separated by a wide distance and communicate with each other via common carrier telecommunication techniques.
WEP	WEP is widely used as the basic security protocol in Wi-Fi networks, which secures data transmissions using 64-bit or 128-bit encryption.
Windows	Windows is a graphical user interface for workstations that use DOS.
WPA	WPA (Wi-Fi Protected Access) is used to improve the security of Wi-Fi networks, replacing the current WEP standard. It uses its own encryption, Temporal Key Integrity Protocol (TKIP), to secure data during transmission.
WPA2	Wi-Fi Protected Access 2, the latest security specification that provides greater data protection and network access control for Wi-Fi networks. WPA2 uses the government-grade AES encryption algorithm and IEEE 802.1X-based authentication, which are required to secure large corporate networks.

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*Theoretical maximum wireless signal rate based on IEEE standard 802.11g specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, mix of wireless products used, radio frequency interference (e.g., cordless telephones and microwaves) as well as network overhead lower actual data throughput rate. Specifications are subject to change without notice. All products and trademarks are the property of their respective owners. Copyright ©2008 AirLink101®